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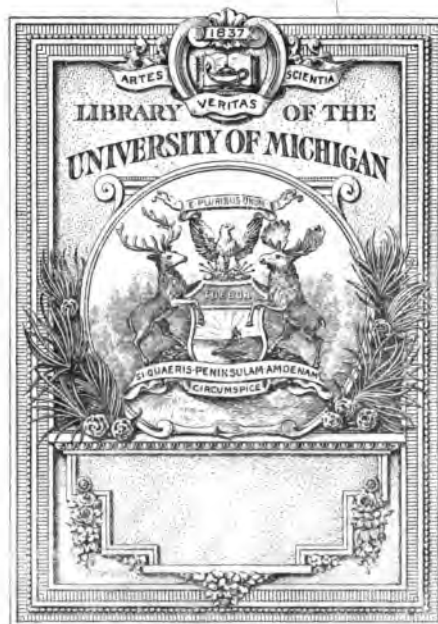
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Indiana State Medical Society.

TRANSACTIONS
OF THE
INDIANA
STATE MEDICAL SOCIETY,
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PRESIDENT'S ADDRESS.

EMPIRICISM.

S. S. BOYD, M. D., DUBLIN, IND.

Two years ago, on my return home from the annual meeting of this association, I took my seat in a car, beside a gentleman who held in his lap a child, his son, about four years old, who at once attracted my attention. The appearance of the boy plainly told that he was a hopeless idiot. The expression of his eyes, the size and contour of the head, the ceaseless whine and the general helplessness, revealed one of nature's sad failures, by producing a life-long, incurable imbecile. He was idiotic from head to feet. His brain, nerves, bones and muscles, were, beyond controversy, all one irretrievable failure.

The father, who was quite communicative, told me he was a poor man, lived in Minnesota, on an unpaid-for farm, and that the child was utterly helpless from its birth. He said that he had seen a circular, sent from Indianapolis, setting forth the many wondrous cures which were there performed on seemingly despaired-of cases. And being thereby inspired with new hope, when all else had failed, he left his wife with three children at home, and came to Indianapolis with this one, to have him made whole. He said the patient had then been three weeks

under treatment in this city, that he was on his way to Richmond to visit friends; after which he would return to Indianapolis and have the case completed; which the doctor told him would require, in all, about six weeks. For this service he was to pay three hundred dollars—no cure, no pay. On inquiry I ascertained that he had paid one hundred and fifty dollars, and that the balance was to be paid on his return from Richmond. And yet, the credulous, simple-hearted father, in his anxiety for his child, failed to see anything irregular in the transaction. He appeared to have unbounded confidence in the treatment, believing that the braces which encased the child's limbs from ankles to hips, and which enabled him to support his weight when set on his feet, was an indisputable indication of rapid recovery from a condition, to cure which, were equivalent to a new creation.

I left the train at Dublin. The unfortunate father and son went on. I have not heard from them since. But it is safe to infer, from the foregoing, that if the father and child still survive, the one is three hundred dollars wiser man, and the poor child, painful as it is to believe, is still a hopeless, whining, slobbering idiot.

This was what may be called a downright, unmitigated case of nineteenth century empiricism. And this was the exciting cause, which coming in contact with a strong pre-disposition, produced this paper on quackery.

The Psalmist David said, "Thou hast made man a little lower than the angels." Shakspeare, from a different standpoint, asserts that

"Man, proud man,
Drest in a little brief authority,
Plays such fantastic tricks before high Heaven
As make the angels blush."

However boldly Shakspeare's assertion contrasts that of the sweet singer of Israel, both views of man are, at least, poetically correct. And if the bard of Avon lived in our day, he would not find it necessary to dress his man in a little brief authority in order to make the angels blush, or even make fiends laugh with delight also. Truth compels us to admit that

he could find material, even in the medical profession, to repay the loftiest flight of his fancy, in painting to life men who have fallen from their high estate.

If we adopt an old classification of mankind into fools and knaves, and assume that the honest men, in all the walks of life are only the exceptions, then we can easily understand why there are so many impostors in the different professions, who live and thrive off of the other divisions of society. Or admitting, as we all do perhaps, that mankind is susceptible of being arranged into three general classes—then the fools, the knaves and the honest will cover the whole field.

When thus classified, the triangular contest between truth, falsehood and ignorance would produce about the result we find in the world to-day. The progress of the right only counting its footsteps by centuries.

The truth is, the average human intellect is not that awe-inspiring thing, that we are called on to fall down and worship it whenever it crosses our path. Hence the facility with which the knave overcomes the ignorant. The latter is properly styled a dupe; the former, when he resorts to the practice of medicine for a cloak, is an unblushing charlatan.

If ours were the only profession which is annoyed by empirics, we might have still better cause of complaint. In the practice of the law, there are pettifoggers; in the ministry there are "one-horse, stern-wheel chaplains." Yet the pretenders in these professions are more easily detected, as their work is mostly performed in open day and in public, where their failures are noted, and they are forced by public opinion to seek an occupation better adapted to their talents. The lawyer is known by the success or failure of a few cases. And if he fails, he fails. The minister needs but to preach a single sermon, when he is read of all men, and his fortune is made or lost. Not so with the doctor of medicine. His labor is principally in private, and with material with which not one spectator in a thousand can understand its hidden changes.

The mystery of vitality, from bioplasm to cell, and from cell through all the multiplied forms which it assumes in producing the complex structure called man; and then the opposing forces

which constantly tend toward the destruction of this enigma, working side by side, and as secretly as the vital forces themselves, all form a problem, which doctors even have not been able to solve. And of course the untrained looker-on can not be prepared to render a correct judgment.

These facts make up some of the difficulties with which the physician has to contend at a disadvantage with those of other professions.

When the counselor-at-law and minister of the gospel find that they have mistaken their calling, they seek their level by changing their avocation to that of commercial traveler, life insurance agents, or go from house to house annoying long-suffering patience by introducing the best book ever published; or some other of the thousand honorable avenues through which mistaken aspirations find profitable employment. But if the physician fail in the legitimate practice of his profession, he invents a patent pill, or an infallible blood purifier, or pain killer, or soothing syrup, or lozenges which the children cry for. Or, if he be entirely devoid of honesty, he still retains the name of doctor, but adds a prefix to his title, as Steam, or Botanic, or Eclectic, or Urinal, or Spiritual, or Physio-Medical—if any one can tell what that means. Or, if his lot be cast in these piping centennial times, when the infinitesimal breeze will best fill his sails, he flaunts his flaming gilt sign to the winds, on which is written :

DR. THEODORE H. SHAMBUBBLE,

HOMOEOPATHIC PHYSICIAN AND SURGEON.

SPECIAL ATTENTION GIVEN TO CHRONIC DISEASES.

And by this sign he conquers, and will conquer until the ever-changing love of change brings to the surface some other so-called system of medicine, more mysterious and as worthless as his own.

While medical science is as exact, perhaps, as chemistry or mathematics, when thoroughly understood, yet it does not appear so to us, because we have not mastered its intricacies. To accomplish this is the problem of the age with scientific physicians. When we, or those who come after us, have unraveled

the mystery of life and disease, and have made our knowledge available, then, perhaps, and not until then, will there be no available room for charlatans.

When Aaron cast down his rod before Pharaoh, and it became a serpent, and the sorcerers—the quack doctors of that day—cast down their rods also, and they became serpents, Aaron's rod swallowed up their rods, if Moses and Aaron had become discouraged, and had abandoned their enterprise, the children of Israel might still be making bricks without straw in Egypt. As they did not, neither must we, but still pursue our march over the Red sea, through the wilderness of ignorance, and dispossess the Philistines of the profession of the Land of Promise.

But to return to some of the causes which make empiricism possible in the present day, let us assert the patent fact that it is so much easier to learn the cheap process of pandering to the popular taste by flippantly saying, "Old School," or "old foggy," than to labor through the weary years of solid study required to attain to successful practice of scientific medicine, that it is not passing strange that those having little natural or acquired ability, and less honesty, should strive to attain to medical honors by a shorter and easier road.

It requires such an infinitesimal preparation of the would-be doctor to talk above the comprehension of the average patron; and he who talks above the heads of his hearers talks as high to them as if he aimed his volubility at the moon. Hence the success in getting the ears of the masses, by the downright pretender, is not a marvel and a secret.

Though there is no profession about which men know so little as that of medicine, there is none on which all men profess to be so familiar.

Even great men, learned men, are not informed on all subjects. Indeed, most of the wisest of our race, however cultivated, have some very weak point, by which, if they were judged alone, they would be classed as idiots. Dr. Johnson believed in ghosts, and Byron was afraid of them.

As some men are afflicted with color blindness, so many

men are suffering from medical blindness, which fact the charlatan turns to his own account.

Nothing so much fosters empiricism as the mystery by which its practice is enshrouded. Hahnemann founded his theory and fortune on this weakness of the human mind. He knew as did the poet :

"They ask for mystery,
And they shall have it, too;
Dark, tangled stuff it shall be—
Everything but true."

Had it not been for this, the father of Homœopathy would far better have taken his contemporary, Hood's, advice to

"Drown, drown your book ten thousand fathoms deep,
Like Prospero's, beneath the briny sea,
For spells of magic all have gone to sleep.
Leave no decillionth fragment of your works
To help the interest of your quacking Burks;
Aid not in murdering even widows' mites.
And now forgive me for my candid zeal;
I had not said so much but that I feel
Should you *take ill* what here my muse indites,
An odeling more will set you all to rights."

Another potent agency by which empiricism is kept afloat is found in the fact that many patrons of medicine select their physician, not so much from their knowledge of his high attainments in the healing art, as they do for some incomprehensible something, which is an enigma to all but the patron himself, and he could not give a logical reason for his selection. It may be that the doctor worships under the tallest steeple, or at the little church around the corner, or he is never seen in a house of worship. Another one prefers a doctor who calls often on his family when he has a patient there, and tarries long in the sick-room, being physician, nurse and chambermaid, all in one. And yet others have the judgment to see that this is but vulgar officiousness. Dress and address have much to do in the same direction.

Some men who talk by the hour, storm weak castles by their impertinent loquacity. But while one of the volubles succeeds,

ten others are quietly filling their sails by their lordly silence. Sixty pounds of extra corpulence is worth a small fortune to many doctors, by imparting to the owners a dignified backward lean to their perpendicularity, thereby adapting them to the justifiable use of a gold-headed cane, which, in itself, is often no impediment in the way of captivating a customer of capital.

These things, and a thousand others light as air, which will tell on the vulnerable points of frail humanity, quacks can see as well as honest men, and as their minds are not pre-occupied with the problem of how to best alleviate human suffering, they make the most of their ability in striving to gain favor by illegitimate means.

We are informed that Cullen, in his time, had to contend with the then popular errors of using boiling oil for dressings of wounds and the stumps of amputated limbs, and the prescription of "burnt toad," taken internally, for divers diseases. In all ages sorcery and charms have been more or less popular. In our day we have so far improved on the medication of our ancestors that we are now, in the year of our Lord 1877, sitting in God's blessed sunshine, improved by intervening blue glass, and swallowing sweetened dilutions of infinitesimal doses of nothing. This is progress. And we need not go back to the days of Cullen to find the people swallowing disgusting prescriptions, such as the "burnt toad" above referred to.

I ask the pardon of this association while I go back but a few years in memory to medication which, if not sanctioned by the doctors of the times, was in common use by their patients. The younger members of this society ought to be congratulated on the fact that their dreams are not disturbed by retained mental impressions of the loathsome potions which were administered fifty years ago.

I can distinctly remember having seen an old man, who rode ten miles on horseback to my father's house, in search of the feces of dogs, a decoction of which was to be administered, internally, for the cure of "putrid sore-throat."

In those days little, guiltless babes were dosed, *ad nauseum*, with what was then called sheep saffron tea. The berries from which the tea was decocted were found on the ground in sheep

pastures. The more sheep there were in the pasture the greater yield of fruit there was to the acre. The cow-yard furnished ready-made poultices not forty years ago. Thus the dog-kennel, the sheep-fold and the cow-yard were the laboratories in which most of the medicine of some of those present was compounded in our boyhood days.

Knowing the foregoing statement of the situation, what is to be done with empiricism? We can not afford to fight it because we have not time to waste in the bootless encounter in which the enemy wages a guerilla warfare, firing from under cover of the ignorance and indifference which the prolific age affords.

As to legislation for the protection of legitimate medicine, we might as well undertake to enact laws whereby grasshoppers, curculios and Colorado potato beetles, would be legislated out of existence, as the pestiferous hosts of charlatans. The people are not ready for it, and our honorable legislators think with James Russell Lowell, our great American poet, that

"The right to be a cussed fool,
Belongs to every creature human;
'Tis common, as a general rule
To every sinner born of woman."

We must abide our time, remembering that our fathers fought, bled and died, that we, their children, might enjoy the boon of ignorance unmolested. We must wait until the school teacher and the moralist have done their perfect work. But where said teacher and moralist are to come from is an unsolved problem.

We have this consolation, however, if it be a consolation, to know that each particular form of quackery is short-lived.

Many of the older members of this association can remember when Thompsonianism occupied, in the west, almost the entire field of empiricism.

The whole system was contained in a thin volume about the size of a child's spelling-book. For twenty dollars any man could buy the right to cook his neighbors to death, as was done in some instances. Now, who ever hears of a live steam doctor? Since that time the Botanic and Hydropathic doctors have

strutted their brief hour upon the stage and left the boards to a disconsolate few Eclectics and Physio-Medicals, who are playing to almost empty houses. *To-day* homœopathy, among the other empirical aspirants for popular favor, is riding the topmost waves. *To-morrow* something as mysterious, and more worthless perhaps, will take its place.

While I am compelled to take this hopeless view of reforming the entirely irregular practice of medicine by direct means, I do believe there is a labor to be performed within our own lines, which promises more profitable results.

There are irregularities existing among those styling themselves regular practitioners of legitimate medication, which may be called MILD FORMS OF EMPIRICISM, and which, through the agency of our Revised State Constitution, we ought to be able to remove.

Through this means, too, indirectly we can do more to destroy bare-faced, unblushing quackery than by wasting our energy on the avowed enemies of scientific medicine.

The American Code of Medical Ethics contains general rules for our guidance, which when stripped of all superfluous verbiage, could be reduced to a single sentence, namely: *All doctors of medicine are hereby required to be gentlemen.*

This may be considered as asking too much for some of us, but it is the law by which we are pledged to be governed, and we ought to strive to be submissive to it, even at a sacrifice.

How many of us subscribe to, and are governed by the code in letter and spirit, in our dealings with our patients and our co-laborers?

Let us see.

Article one, section four, of the Code reads as follows: "A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying his importance in the treatment and cure of disease."

Are all the members of the State Medical Association entirely above suspicion, as far as the above rule is concerned? Do none of us, on any occasion, drop the least hint that we were called just in time to save a valuable life which was hanging in a balance? If none of us individually are guilty, do we

not know some brother, who is present, who is in the habit of suggesting the danger of typhoid fever to his patients, when a few days at most of well-directed anti-periodics will have the frightened sufferer on his feet, having recovered from only a mild type of remittent fever?

“Article 6. Consultations should be prompted in difficult or protracted cases, as they give rise to confidence, energy and enlarged views in practice.”

Have none of us ever found ourselves not only not prompting a consultation, but actually warding it off when suggested by friends of the patient?

I believe this is one of the most common violations of the code chargeable against physicians. And when a council is finally acceded to, the attending physician is too apt to suggest the name of some doctor at a distance in preference to a nearer co-laborer, who is just as competent, simply for the object of not assisting to build up a reputation of a medical rival too near home.

On the subject of “Duties for the support of professional character,” in the Code, article one, section one, we find this common sense law :

“Every physician should avoid all contumelious and sarcastic remarks relative to the faculty, as a body; and while by unwavering diligence he resorts to all honorable means of enriching the science, he should entertain a due regard for his seniors, who have by their labors brought it to the elevated condition in which he finds it.”

Have none of us ever laid ourselves liable to a mild-reproof for violation of the above article? Or have none of us ever heard of some medical brother who, in an unguarded moment, has hinted to his patients, or, in a more public manner, suggested that “the faculty as a body,” in the language of Bumble, “is a ass and a idiot?”

Have not some of the older physicians said of younger members of the faculty: He is a young man of fair attainments, and when he has a few years of *experience* he will make a reputable practitioner, provided he keep his reading up with the times, and does not fall into any of the indolent habits so com-

mon to young men just out of college, who think there is no more to be learned. The old doctor, too, so accents the term *experience* as to give it the benefit of its full weight of meaning. And does not the younger brother, by way of retaliation, say: That the old man has been a very clever physician in his time, and might be yet if he did not think "that all virtue is the pasts," and would ponder less on old theories, and turn his attention to the more recent improvements in medical science?

Under no circumstances more than in consultations is the want of professional courtesy so likely to crop out if all parties are not fully aware of their responsibilities, and they have not the integrity to stand the severe ordeal. The anxiety of the friends of the patient to obtain the secrets of the council, and a lack of a due regard for, or a knowledge of, the proprieties of the occasion, often lead the too-communicative doctor to do a serious injury, not only to parties to the consultation, but to the profession at large. To protect the profession from the evil consequences of consultations, article four, section seven, of the Code was adopted, as follows:

"All discussions in consultations should be secret and confidential. Neither by word nor manner should any of the parties to the consultation assert or insinuate that any part of the treatment did not receive his assent. The responsibility must be equally divided between the attendants. They must equally share the credit of success as well as the blame of failure."

This, to some of us, may be an unpleasant obligation of the American Code. But its requirements are all contained in that older code, "Do unto others as you would have others do to you," and is as just as it is old. Indeed, our whole ethical law is but an amplification of the golden rule, and should be observed in letter and spirit.

We have no right, by jest, or look, or by silence even, when we ought to speak, to

"Damn with civil leer,
And without sneering teach the rest to sneer,"

when by so doing we compromise those intimately associated with us, and injure the profession at large.

These are a few and only a few, of the many means by which our profession may be brought into disrepute, perhaps more so than all the satanic machinations of irregular pretenders to medical favor ever have, or ever can accomplish.

If all men of merit in the regular practice of medicine would strictly observe the requirements of the National Code of Ethics, and as strictly rule out others, though they claim to sail under orthodox colors, it would do more to drive quackery out of the field than all the legislation we can ever hope to secure.

I know of a county in this state which has not one irregular practitioner of medicine within its borders. In that county they have long maintained a reputable medical society, in which not only the progress of medicine is encouraged, but a fraternal interest is so well sustained by its members, as to defy the success of empiricism. Why could not we, by adopting the same policy, so extend this normal influence, began in Rush county, until it would cover the state as the waters cover the great deep?

Each member of the State Medical Association should consider himself a part of one stupendous whole. A noble edifice, in which all can not be corner-stones or cap-stones, nevertheless are necessary parts thereof, essential to the harmony and strength of the building. When we have arrived at this state of zeal, approaching perfection, all the little "ics" and "path-ics," which now annoy honest medicine, will be as harmless to its progress as they are inefficient for the cure of disease.

GORDON'S METHOD
OF
TREATMENT OF COLLES'
FRACTURE OF THE RADIUS.

JOHN CHAMBERS, M. D., INDIANAPOLIS.

Fractions of the lower end of the radius are of extreme interest to the surgeon, not only on account of their frequent occurrence, but because of the various and conflicting views in regard to their nature, the different plans of treatment, and the results, which are generally unsatisfactory, as regards the future usefulness of the injured limb.

Various forms of fracture are described, the diagnosis of which is easy; while the treatment is often attended with much difficulty, at the time, and no little chagrin and disappointment afterwards, on account of deformity, which has seemed inevitable. I venture to say that every practitioner here present, has met with cases which have baffled his skill to maintain satisfactory adjustment of the broken bone, by any of the appliances usually described in text-books and works on surgery.

There are two well-marked forms of fracture of the lower end of the radius, in addition to other rare and anomalous forms, with which I have nothing to do in this paper: First, *Colles' fracture*, in which the bone is broken from one-fourth of an

22. *Gordon's Treatment of Colles' Fracture of the Radius.*

inch, to one and a half inches above its lower end, the lower fragment being displaced backwards, upwards and outwards. The history is that of a fall on the palm of the hand. Second, The bone is broken near its lower end, the lower fragment being displaced forward. The cause of this injury is a fall on the back of the hand.

To the first of these forms, or Colles' fracture, my remarks will be confined, because it is by far the most common, and ordinarily is the most difficult to treat.

The signs of this fracture, when well marked, are as follows: "The injured arm is helpless, the patient supporting it with the other hand in a position midway between pronation and supination. The axis of the hand is directed unnaturally outwards, the lower end of the ulna prominent, the back of the hand seems elongated and as if prolonged into the fore-arm, it also projects very much backwards, this projection consisting of the carpus and the lower fragment of the radius and ending above in a well-marked sulcus. On the palmar surface of the lower part of the fore-arm is a well-marked swelling, prominent externally, but disappearing when it reaches the ulna. Any attempt at pronation or supination will be resisted, on account of the pain it produces, and finally, crepitus may or may not be present.* Gordon also directs attention to a sign which is of much value in cases where the deformity is slight, viz: the pain experienced from pressure on the seat of fracture in front or behind. This, in the absence of signs of contusion, would not be caused by a fall on the palm of the hand, unless the bone is broken.

Inflammatory swelling very soon makes its appearance at the seat of injury and about the wrist-joint, and leaves a thickened condition of the fibrous structures which may afterwards interfere with the movements of the flexor and extensor tendons, and cause much stiffness of the joint, lasting for many months.

The fracture is described as being usually transverse, but Gordon affirms that it is most frequently oblique, from before, backwards and upwards. Of his twenty-seven specimens, nineteen are oblique and eight transverse.

*Gordon on "Fractures of the lower end of the Radius," page 3.

The prominence of the styloid process of the ulna is owing to the shortening of the radial side of the fore-arm and hand, and the swelling on the anterior surface of the fore-arm is due to the forward projection of the upper fragment through the action of the pronator *quadratus* and pronator *radii teres* muscles. With regard to the backward projection of the lower fragment and carpus, various opinions are held by different authors. Voillemier, Malgaigne and Nelaton regard impaction as the true cause of the deformity; and this view is maintained by Callender also. Bryant, in his work on Surgery, states: "The thirty-six specimens of fracture of the lower end of the radius, which the museums connected with the London schools of medicine contain, show clearly that the cause of each deformity is the impaction of the proximal in the distal portion of the broken bone." Erichsen is of the opinion that impaction does sometimes occur, but he also states that "when the fracture is simple, or when it is comminuted without impaction, I agree with R. W. Smith that the displacement of the lower fragment is the result of muscular action." He then gives his observations on a case in which he had the opportunity of dissecting the parts in a man who died twenty-four hours after receiving a fracture of the radius half an inch above its lower end, and which had presented all the well-marked signs of a Colles' fracture. He says: "The chief cause of displacement and the main obstacle to reduction was found to exist in the two radial extensors of the wrist, the tendons of which were excessively tense; next to these the special extensors of the thumb presented most tension, and then the supinator longus. On dividing these tendons, and on pressing the lower end of the upper fragment outward, reduction was easily effected, although during life it was impossible to restore the parts to their normal position by any amount of extending force" he could employ.

It is fair to assume that this would have been regarded as a case of impacted fracture, had no *post-mortem* examination been made, and I think it tends to support Gordon's opinion that true impaction does not occur. "Colles' fracture is not, nor can it be, an impacted fracture; its mechanism declares

impaction to be a mere phantom of the imagination, resulting from the erroneous interpretation of pathological facts.”*

There has been a singular unanimity of views among authors as to the mode of production or mechanism of the fracture. The fall on the palm of the hand, and the force acting in a direction upwards and backwards, causing the bone to break at its weakest part, sums up nearly all that is written about it.

Dr. R. W. Smith says: “The fracture is usually the result of a fall upon the palm of the hand, and is liable to happen whenever a person in the act of falling forwards throws out before him his arms and hands in a state of extension, which he does, as it were, instinctively, to save the head and face from injury. Under these circumstances (if luxation of the bones of the fore-arm, at the elbow-joint, does not occur), from the influence, upon the one part, of the weight of the body and impulse of the fall, and upon the other, of the resistance given to the hand by the ground, the radius, which receives almost the whole force of the shock, breaks at its weakest part—that is, its lower extremity—for it is here that the cellular structure is most abundant and the compact tissue thinnest.”†

Mr. Flower, in *Holmes' System of Surgery*, gives a similar explanation. So also does Hamilton, Erichsen, Bryant, and, indeed, all the works on the subject I have read. Gordon joins issue with them, and makes the important declaration that the break is not the result of a force acting from below, upwards and backwards, but that it is caused by what mechanics call a “cross-breaking strain,” or, in other words, by a force acting “transversely or at right angles to the axis of the shaft of the radius.” The effect of the force is an almost complete obliteration of the concavity of the radius, the lower fragment being carried backwards by a rotation or twisting, rather than by a direct displacement. As Gordon shows, it is hard to understand how a force acting from below upwards could produce a transverse fracture but a few lines above the carpal surface of the bone. Moreover, a Colles' fracture can be produced easily on the dead body by steadying the lower end of the radius,

*Gordon on Fractures, etc., p. 27.

†Smith: Dislocations and Fractures in the vicinity of Joints, p. 134.

while the hand is violently extended or bent backwards, an experiment which can be performed without difficulty on any but a very powerful arm. This artificial fracture, as we may term it, is only wanting the influence of muscular contraction to make it present all the characteristic signs of a recent Colles' fracture in the living subject.

The mode of production of the fracture, according to Gordon, is as follows: "The fall upon the palm of the hand forces it backward, putting the anterior carpal ligaments and flexor tendons violently on the stretch, wrenching off by the 'cross-breaking strain,' the lower end of the radius, tilting it backwards, with alteration of the aspect of its carpal surface, and leaving a gap between the fragments in front. The lower end of the upper fragment is convex from within outward and from before backward. The lower fragment is concave from within outward and from before backward. The upward pressure of the carpus on the latter, which is tilted over, holds it backward or is applied mainly against the posterior part of its carpal surface."*

It is absolutely necessary that we should fully understand the mechanism of the fracture as just stated, because it involves a complete change in theory, and points infallibly to a certain line of practice which will be referred to afterwards, viz: the fixing of the upper fragment in front, while the lower is pressed forward and the hand flexed to an angle of forty-five degrees. This degree of flexion is necessary to tilt or roll over the lower fragment into its place, and so restore the concavity of the radius and the natural aspect of its carpal surface.

The treatment of the ordinary fracture of the radius near the wrist, is best conducted by Nelaton's splint (which is a pistol-shaped wooden splint, placed along the outside of the arm). So says Erichsen. Dupuytren maintains the hand adducted also by an ulnar splint. Colles, I believe, used a straight splint, and Hamilton prefers it, although he allows the hand to remain slightly adducted. Indeed, nearly all surgical authors seem to think that *adduction* of the hand, together with extension, is of prime importance.

*See Gordon, op. cit., page 14.

Erichsen gives the following directions for the treatment: "Nelaton's splint, which extends from the elbow to the fingers, should be thickly padded below, opposite the lower fragment, and then applied along the posterior surface of the fore-arm, while the hand is well adducted and secured in this position to the bent part of the splint. Another short splint, reaching from the bend of the elbow to the lower extremity of the upper fragment, is then applied along the anterior surface, this splint being thickly padded at its outer part, in order to counteract the tendency to pronation of this part of the bone."*

These directions are very simple, and can be easily carried out in practice. The hand is directed to be *adducted* in order that by drawing the *styloid* process downwards and inwards, the upper end of the lower fragment would be carried outwards, and the interosseous space restored. But, as narrowing of this space to any extent is very rarely met with, it can not require correction. It only occurs when the fracture is more than an inch from the lower end, and these are the cases which are always the most difficult to treat.

Although, as I have stated, this treatment is easily applied, yet, as we must all acknowledge, it is frequently most unsatisfactory, and one cause of this is, no doubt, the adducted state of the hand.

In adduction of the hand the carpus moves outward, and the abductor muscles are made tense. We have already seen in Erichsen's dissected case that tension of these muscles is the cause of the displacement and the chief obstacle to reduction. By adducting the hand, therefore, we simply put the muscles still more on the stretch, and enable them, with the flexors and extensors, to draw powerfully on the lower fragment, displacing it in a direction upwards, backwards and outwards, "producing, in fact, the backward projection of the lower fragment, which is the most marked deformity of the accident, and the one which the surgeon is most anxious to counteract."

Abduction of the hand is the position of rest—that in which very few movements of the hand are executed—and should be adopted in the treatment of this fracture.

*Surgery: Vol. 1, p. 283.

The chief cause of the failure of the pistol and straight splints, is, that they do not restore the natural concavity of the radius, and on this subject I will quote in full the views of Professor Gordon. He says, "For many years I have had no doubt that the failure of the pistol splint was due to the non-restoration of the natural form of the radius, and that the inflammatory swelling of the wrist was not a primary but a secondary condition, and referable to the same cause. I affirm that when the natural form of the radius is restored, immediately or soon after the accident, this sequence is seldom observed, and must be regarded as exceptional. The production of the artificial fracture by forced extension, shows that the fracture can not be treated successfully by the pistol splint, nor by any other apparatus which holds the hand extended. When I apply the pistol splint to the back of the hand and fore-arm, the fragments gape in front, the carpal surface still maintains its downward and backward aspect, the carpus presses unnaturally backward upon it and the gaping is still further increased when the hand is adducted. Matters are made worse when the splint is applied to the front of the fore-arm and hand. Neither the pistol nor the straight splint fulfill the indications required of them. They can not correct the deformity. They can not rotate the lower fragment sufficiently forward to restore the concavity of the radius and the natural aspect of its carpal surface. A curved back splint, with a thick pad resting on the base of the metacarpus, the carpus and the lower end of the lower fragment, are required."

The apparatus which Gordon recommends consists of a posterior curved portion and an anterior portion—the anterior splint consisting of a body, an ulnar piece, which is curved forward and hollowed to receive the inner border of the flexed hand, and the radial beveled portion, which is secured to the body about half an inch internal to its margin. It is applied to the palmar surface of the upper fragment, which it steadies. It is *for this purpose alone, and must on no account be applied lower than the margin of the upper fragment.* The splint requires to be lightly padded, and a strap is used to bind the carpus to the ulnar portion, and so help to counteract the back-

ward and outward displacement. The mode of action of the posterior curved splint, which must be thickly padded below, over the backward prominence, is so obvious as to require no explanation.

In conclusion, gentlemen, I recommend to your most careful attention the method of treatment of this fracture by the use of Gordon's splint. I have used it in one or other of its forms for eight or ten years, and during that time I have certainly had to treat quite a number of cases. As the result of my experience, I can say very confidently that you seldom or never have any trouble with your case after the first adjustment; the swelling of the wrist disappears in a day or two, and above all, there is no subsequent deformity, and no stiffness of the wrist-joint, and of the fingers, which are considered the inevitable sequelæ of the accident. I can give my hearty assent to Dr. Gordon, when he says: "The treatment of fractures of the lower end of the radius is now, by the proper application of my splint, as easy as that of any other fracture, and unattended with any serious consequences as regards the future usefulness of the limb."

DISCUSSION.

Dr. Laughlin, of Orleans—Mr. President, the paper of Dr. Chambers, it seems to me, is worthy of some remarks—at least, some praise at our hands. It is known to every practicing physician that it is one of the worst fractures we have to treat, and one that often gives a good deal of dissatisfaction, both to patient and physician. The doctor, in the course of his remarks, stated that he thought it impossible to treat fractures of this character, successfully, with a straight anterior splint.

My own experience in that direction, however, would differ with the doctor. For some years past, I have been in the habit of treating these fractures with the compress. I use a straight posterior splint, placing the compress over the back part of the radius—the portion that is fractured—the anterior part entirely above it. And as

NOTE.—A wood-cut illustrating the form of Gordon's splint and its mode of adjustment, is given in Swain's "Surgical Emergencies."

the doctor said in his closing remarks, the amount of force or pressure that is required to keep the parts in position, is very slight. When once the parts are in proper position, they are very easily maintained there. The philosophy of the treatment is just the same.

The compress, acting as the upper part, is the anterior splint; while the posterior compress presses forward the fragments of the bone that is broken off.

I do not think I ever had any trouble, to amount to anything, in dressing fractures in that way. In regard to the Colles' fracture, or the nature of it, I was so fortunate as to be with Professor Martin when he received specimens from Professor Moore, in which the fractured part was broken in three pieces. Professor Moore claimed that it was always a comminuted fracture.

Professor Martin had quite a number of specimens in his office at the time, showing that it was not the case. Moore claimed that he never had dissected a specimen where the fracture had taken place recently, but that he found the fragment broken in two or more pieces; but Martin disagreed with him on the point and said it was not his experience.

Dr. Hobbs, of Knightstown—I want to add my testimony to what I conceive to be the worth of this paper, which is just the thing, and the paper that we had at our last session, on dislocation of the femur.

In relation to the new method of reducing the dislocation of the femur—it is so simple, so much common sense about it—it makes us wonder almost that we did not think of it and always do it that way before, and equally simple and practical is this treatment of Colles' fracture.

If we would more closely study the anatomy of the parts, and apply common sense to it, and look less to the authorities and more to the principles of mechanical philosophy, we, perhaps, should succeed better and theorize very much less. I think the thanks of the society are due to Dr. Chambers for the paper he has presented to us.

Dr. Robinson, of Martinsville—I would like to thank Dr. Chambers for his paper on this fracture. What little experience I have had with it, has shown it to be a very unsatisfactory fracture to treat; not because the results had not been good as far as the functions of the limb were concerned. I have treated about a half dozen cases, some with straight splints, and in every case the function of the limb after it healed was perfect; but in every case there was deformity. His

notions, or rather Gordon's notions of the pathology and causes of it, seem to be rational and philosophical; likewise, the treatment with the ordinary straight splint, or pistol splint, will give good results as far as the use of the limb is concerned; but if this treatment supplemented by Gordon's will prevent deformity, it certainly should be tried.

Dr. Cominger, of Indianapolis—I feel like simply giving my testimony in favor of this splint, in the treatment of Colles' fracture. Cases that I have treated have been very unsatisfactory to myself; the difficulty has not been in effecting reductions—it has been in maintaining the bones in close apposition during the union.

That has been the difficulty with me. I have not experienced a difficulty of dislocating or disentangling the lower fragments, or ligaments, or tendons. I think that rarely occurs; that fact has been mentioned by Dr. Bigelow; but my experience does not warrant that opinion, however, the opinion is pretty generally accepted that we have that particular fracture.

It was only about two years ago that I first noticed this form of dressing. The diagram I got perhaps was not correct; at least I could not understand very well the application of the splints from the description given. I have been, I was going to say, for ten years, in the habit of treating this fracture by the splint coming down nearly to the point of fracture, with a long, straight splint on the dorsal surface. I have succeeded better that way, than by the use of the pistol-shaped splint. In fact, Mr. President, I never used the pistol-shaped splint but once, and I obtained such an unsatisfactory result, that I abandoned it. I used this splint in several instances, and am better pleased with the results, though they have not been as perfect results as have been represented here by the essayist; yet they have been much better than I have been able to obtain by any other mode of dressing. Also another advantage, which is a very important one, mentioned by the essayist, is, that it leaves the joint in a much better and more perfect condition than other methods of treatment. It does not leave the joint stiff, the fingers stiff, the circulation of the blood feeble and the whole muscular system and hand, comparatively useless and almost paralyzed, as with the ordinary mode of dressing. Another advantage, and a very particular one in the use of this splint, is, that it is one of the most comfortable dressings that you can possibly apply; in place of giving the patient pain and uneasiness after its application, if there has been pain and uneasiness at the point of the fracture, and you apply that

dressing, the patient at once becomes easy, free from pain and is comparatively comfortable, and taking into consideration the simple matter of dressing, itself, it is very simple and philosophical, and whether we get perfect results or not, we get very much better results than we could by the ordinary mode of dressing, and make the patient more comfortable with it. The great difficulty I have met with, in the treatment of this form of fracture, has been a dislocation of the ulna, not a natural dislocation, but a partial dislocation, throwing the styloid process of the ulna entirely too far forward. I have been unable to correct that and prevent that peculiar deformity from existing, by any other mode of dressing than that which has been represented here and so effectually demonstrated to-night. If it answers that purpose in preventing the deformity, and one that so universally follows the ordinary way of dressing, prevents stiffness of the wrist, bringing about much better results and a much more perfect use of the hand, it certainly has all to be credited to its favor.

I do not think I can speak too much in favor of this style of dressing for the Colles' fracture, and am certainly well satisfied that it has given much better results than the ordinary method of treatment, which method I think is a detriment and I would rather treat a fracture of this kind without any splint, than be compelled to use a straight splint.

Dr. Lomax, of Marion—In regard to these accidents where deformity frequently follows, my observation has been that it has been occasioned by the neglect of the patient to have the limb dressed in proper time. I have seen a number of cases of deformity in which no dressing had ever been applied, except such as non-professional persons had improvised. I have seen a number of cases which had been neglected so long that the physician himself could not very well tell, when he saw the limb, whether there was a dislocation or a fracture. Those were the cases that I have known to result unsatisfactorily. A physician is called, or applied to some days after the accident occurs; the part is swollen and tender; the patient unwilling to submit to treatment—that kind of treatment that is necessary. Those appliances that are necessary to preserve the part in perfect apposition can not be borne. I have been called upon to treat a good many of these cases, and excepting two, I think they have resulted very satisfactory. One of these was a case in which the ulna was thrust through—two inches of the ulna was protruding. It was exceedingly difficult to get it back: in fact, I thought I would be under the necessity of sawing the end of the bone off; it required

great force to restore it, and resulted in a deformity and a disability of the hand. Another case occurred, in which an old lady received the injury some time before I saw her and never submitted to treatment; in fact, it was too painful to force the hand into a proper position and retain it there. Except these two cases, I think I have had very satisfactory results. I have known cases occur, in which the physicians were very much blamed in consequence of deformity. No treatment of theirs had anything to do with it whatever, and it was my experience that these deformities arose more from neglect to call on the physician at the proper time to treat them, than from anything else. I think the success in these cases is a dependence on seeing the case in time and applying some splint properly—an application of almost any splint that will keep the parts from movement. I would say also, in regard to this splint, that I am highly pleased with it. I was not aiming to detract anything from the splint; I think it is an improvement on anything I have seen.

Dr. Chambers, of Indianapolis—From the remarks of some of the gentlemen, I think they have misunderstood me. I believe I stated that the fracture—the deformity—could be reduced by simply applying splints; I do not wish to go quite so far as that. I stated, and meant to convey the idea, that the forces at work in this application were of such a kind that they naturally tended to overcome the deformity in young persons and in children. I have tested the simple application of these splints and overcome the deformity in a child without making any extension whatever. In adults, of course, it is necessary to make extension in nearly all cases. When once adjusted, there will be no great liability at least, of displacements of this kind; hardly any, certainly less than in any other dressing. I never had any recurrence of deformity after they had been applied.

THE MEDICAL WITNESS.

WILSON HOBBS, M. D., KNIGHTSTOWN.

There are two distinct relations in which a medical witness may be called into a court of justice. The first of these, is where he is required to state facts, which have been observed by himself, or which come within the range of ordinary testimony. His business is simply to relate what he has himself observed, subject to the rules and limitations of common evidence. In such case, the court and jury are supposed to understand the significance of the facts without special teaching, and to be able so to apply them to the principles involved in the pending cause, as to administer justice. While in this character, should such a witness, by accident or design, inject an opinion of his own into his answers, he will likely be told that his opinions are not wanted—the jury only desire the facts within his knowledge, and will make opinions for themselves.

Such a witness must answer the subpoena of court, and respond to all questions put to him, within the limits prescribed by law, and refusal to do this, will subject him to the penalties of contempt. For his services in court, he can expect only the mileage and per diem provided by statute.

As a common witness, the physician has no rights or privileges not equally appertaining to all, except as concerns the confessions of patients. “The relations of the patient to the physician, being necessarily of a confidential character, com-

munications are often made to him, in the nature of confessions. These communications, which may relate either to the history of a transaction, in which a wound has been received, or a particular disease communicated, whenever essential to the treatment of the patient's case, are in some states, considered privileged communications, which the physician is either expressly forbidden or not obliged to reveal. This is the law in Arkansas, California, Indiana, Michigan, Iowa, Missouri, Minnesota, New York and Wisconsin. The confessions, in order to be protected against disclosure, must relate exclusively to such matters as are indispensable to the treatment of the patient. Communications made outside of this sphere, require no immunity, from having been entrusted to physicians, for at common law such cases are not privileged, and whenever so recognized they are the creations of statutory enactment. Yet in some of the above mentioned states, the party interested may waive the privilege, in which case the communication may be disclosed.* But in New York, it is expressly enacted, that no person duly authorized to practice physic or surgery, shall be allowed to disclose any information which he may have acquired in attending a patient in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon. Necessarily all communications, and however privileged, must be of a lawful character, and not against morality or public policy; hence, a consultation as to the means of procuring an abortion in another is not privileged, nor by parity of reason would any similar conference which was held for the

*No attorney, physician, surgeon, clergyman or priest, is a competent witness to disclose any communications intrusted to him in his professional capacity, and necessary and proper, to enable him to discharge the duties of his profession, according to the usual course of practice or discipline, unless with the consent of the party in whose favor the rule operates. *McDonald's Treatise*, p. 119, *R. S.* (G. & H.), p. 168, *Davis' Ind. Dig.* Vol. I, p. 232—Rev. 1877.

On a motion for a new trial, supported by the affidavit of a physician, that a party had confessed to having allowed an abortion to be committed upon herself, it was held that such proof was inadmissible, without first showing permission on the part of the female to the physician, to reveal the same. *Harris vs. Rupel*, 14, *Ind.*, p. 209.

purpose of devising a crime, or evading its consequences."[†] (*Ordronaux Jurisprudence of Medicine*, pages 151, 152.)

But in the trial of causes in the courts of justice it frequently happens that the subject matter of inquiry is such that men in general have not sufficient knowledge of it to enable them to draw correct and intelligent conclusions from the facts proven. In cases of this character, it is the custom to call such persons, as from their special training and experience, may be deemed competent to instruct the court and jury in regard to those matters requisite to a just determination of the questions in issue. Under the forms of common law such instruction can be brought into court only in the character of evidence, and such testimony is called skilled testimony, or scientific evidence, and the persons furnishing it are called skilled witnesses, or experts. The testimony furnished by this class of persons must differ essentially from that of ordinary witnesses. The former are only to state facts which have come within their own personal knowledge, leaving the jury to draw all the deductions and conclusions which are necessary to the determination of the cause. But in cases into which enter questions of abstruse learning and technical skill, ordinary men have not the knowledge and experience to enable them justly to estimate the import of the facts proven and apply them to the laws and principles which obtain in the science or art to which they appertain, so as wisely and justly to determine the cause at issue. Hence the custom of common law usage is to invoke the aid of those skilled in the particular knowledge or skill to which the cause relates, that they may explain the nature of the laws and principles involved, and the significance of such facts as may be stated. While, therefore, the common witness must confine himself to the narration of facts within his personal knowledge and leave the jury to their own opinions, it is the business of the expert to give his opinions upon facts stated to him, and so to teach the nature and

[†](ORDRONAUX.) Ark. Dig. of Stat. 1858, ch. 181, par. 22; Cal. 1850—1864, par. 5336; Ind. Acts, 1861, par. 51, par. 3; Mich. R. S. 1846, chap. 102, par. 86; Minn. St. 1849—58, p. 682; Missouri R. S. 1845, chap. 186, par. 20; Wis. St. 1858, p. 812; Iowa R. S. 1860, par. 3985; N. Y. R. S., 5th Ed. Vol. III, p. 690; Vid. Johns vs. Johns, 4 Paige, Ch. R., 460, and 14 Wend., 637; 1 Grif. on Evid., par. 248.

laws of the department of knowledge or skill involved, that to these opinions and to this teaching the jury may so apply the facts proved in the case as to come to correct judgment in their verdict.

The difficult, as well as the more honorable, duties of a medical witness arise when he assumes the character of an expert. The subpoena demanding his attendance at court does not designate the nature of the evidence which will be required of him, and he is subject to the penalties for contempt if he should fail to attend. But if called to the stand and service is demanded of him as a skilled witness, he is as free to refuse or respond as when other professional advice or service is asked of him elsewhere. His medical knowledge and skill and his ability to teach belong to no common stock, to which the public may have access without his consent. They are his own private capital and property, which he may use, with or without consideration, here or elsewhere, as he will, and which no man or court has the right to demand of him.

Being called by one of the parties to the suit to whom it is supposed his professional attainments are valuable, it is his privilege to demand an *honorarium* as the condition of his service. In my experience, the matter of compensation for service as an expert has been a very difficult one to adjust; so that while my fees were assured, the credibility of my evidence and the cause of my employer were not prejudiced thereby. When with no previous understanding, I have trusted entirely to the great-heartedness of the party calling me to fairly settle the matter when the case was over, more often than otherwise, disappointment and disgust have met me. When an agreement upon fees has been reached before entering into the case, the whole story of the contract has been drawn out upon the stand and paraded before the jury by counsel of the other side, to show that my evidence was shaded by money. Not long since, while the frequent calls upon me for service in the courts made it necessary for me to determine certainly what rights and privileges the expert carries with him to the witness stand, I addressed a number of inquiries to the Hon. John Ordronaux, of New York, the author of what, I think, is the best work

extant on *The Jurisprudence of Medicine*. My first series related to the matter of compulsory expert testimony and the right of the skilled witness to demand compensation, either by an allowance by the court or by fee charged to the party calling in his service. The honorable gentleman was pleased to reply as follows, viz :

STATE OF NEW-YORK,
OFFICE OF THE STATE COMMISSIONER IN LUNACY,
ROSLYN, QUEENS COUNTY, January 15, 1875.

DR. WILSON HOBBS—Knightstown, Ind.—*Dear Sir:* Professional and official engagements at court have prevented me from replying before this to your note of December 28.

It is true that under our common law practice no distinction is made between the subpoenas issued to common and to skilled witnesses, and the latter being *specially* retained, as a general rule, by the parties calling them, are supposed to be paid for their services. It would be wrong, so long as an expert is called exclusively in the interests of, and by one party, to expect the court to grant him an allowance.

But if a witness, knowing nothing personally of the case, is called by either party, it is his privilege to say as much or as little as he pleases on the stand, as matter of professional opinion. It is not contempt of court to refuse to give a professional opinion, because such opinion is not properly legal testimony (meaning facts within the knowledge personally of the witness), but it is an inference only upon facts agreed upon and stated to him. He may decline to give any opinion if he sees fit, or may state his reason to be, that he demands a fee for it as he would for any other professional service. No court can compel a person not cognizant of facts connected with a case to give testimony in it, simply because it can not compel him to tell that which he does not know. He has only to state when on the stand that he knows nothing about it. So, too, with experts. A professional opinion is a man's private capital, which no court can take from him without his own consent and in return for a consideration. Necessarily, when an expert appears as such on one side of a case, he is supposed to be paid by that side. If he is not, then he may refuse to give any opinion until some fee is assured him, for the fact must be always kept in view that he is not an ordinary witness, and public policy does not authorize compulsion in his case. I believe these views have, on one or more occasions, been already sustained as wise practice in the United States, but, although I can not refer to them by name (one I think, was in California), you may rest assured that this is the ground upon which the English cases rest.

Hoping I have answered your interrogatories satisfactorily, I remain,

Very respectfully yours,

JNO. ORDRONAUX.

Having received this clear and candid statement from the honorable gentleman, I followed it with inquiries as to whether, when counsel demand to know the terms of the engagement

which the party calling me had entered into to pay me for my service, an answer might not be refused without contempt, and how far the knowledge that I was paid for my service would be likely to prejudice my testimony in the mind of the jury. He was pleased very promptly to reply as follows :

OFFICE OF STATE COMMISSIONER IN LUNACY,
ROSLYN, N. Y., Feb. 12, 1875.

DR. WILSON HOBBS—*Dear Sir:* Your note of the eighth instant came last night, and knowing the importance of its subject matter to you, I hasten a reply at once.

The range of questions which may be put to a person on the witness stand, is very wide, and its limits must be left in a great measure, to the discretion of the court. I think you over-estimate the disparaging effects of such a question as you fear may be asked you. To render professional service in or out of court in an honorable way, is always proper and defensible in law.

The fact that a party receives a compensation for it, does not detract from its merit. The judge receives a compensation, the clerk, the counsel and the jury. Then why should not you? An expert is not a common witness. He does not testify. He simply gives an opinion upon testimony submitted to him.

In order to protect yourself from any inference which may be made against the impartiality of your opinions, you should have no interest in the issue of the case, and not depend for your fee upon the character of the verdict, whether for plaintiff or defendant. Get your fee before you go into court, and then you can say you have no interest, present or contingent, in the case, and that you give your opinion upon the weight of the facts submitted to you, as do the jury, and regardless of personal interest. If you refuse to answer the simple question of whether you have received any compensation, more importance will be attached to it than it deserves; because it will seem that you are holding back something which you fear might damage your side. Say frankly thus: "I did not offer my services here any more than I do my professional services elsewhere; I was sent for and have come. My time and my skill are my capital, and I can not surrender them gratuitously to any but the poor, since it is by my professional opinions that I earn my living."

No jury will think any the less of your opinion, because you are paid for it. Lawyers, of course, ask any question that the court will allow. But the opposite party should check them. Provided you have no interest in the case, you are safe in answering frankly the questions put to you.

I am in haste, very truly yours,

JNO. ORDONAU.

Maule, J., said, "there is a distinction between the case of a man who sees a fact and is called to prove it in a court of justice, and that of a man who is selected by a party to give his opinion, on a matter with which he is peculiarly conversant

from the nature of his employment in life. The former is bound, as a matter of public duty, to speak to a fact which happens to have fallen within his knowledge—without such testimony, the course of justice must be stopped. The latter is under no such obligation. There is no such necessity for his evidence, and the party who selects him must pay him." (1 Grif., Evid., par, 320, n.)

"When, however, he has given his opinion, he has placed it among the *res gestae* of the evidence, and can not decline repeating or explaining it on cross-examination. Once uttered to the public ear of the court, it passes among the facts in evidence, and counsel may use it as they please, without any further compensation to him. The point of declining to give it gratuitously must be made, if at all, at the opening of his examination-in-chief, and will avail him nothing if delayed until the cross-examination." (*Ordronaux, Jurisprudence of Med.*, p. 141, par. 114.)

The foregoing opinions, from so eminent authority, I have no doubt may be accepted as good law and correct practice. Later observation and the experience which has fallen to my lot lead me to adopt for myself, and to advise others, a course somewhat as follows :

When consulted in relation to a case which is likely to be brought into court, or which is already there, give such advice, after a very careful study of it, as best judgment prompts, and charge for the opinion as ordinary office counsel service, which is best paid at once. Should the party consulting you desire to retain you to give evidence in court, let there be an agreement as to what he shall pay for your professional service and the time which he may demand of you. As the progress of a case in court is so uncertain and subject to so much delay, when attendance will call you away from home and business, it is best to agree upon a *per diem*, besides the fee for evidence, for such time as may be required of you, and it will be found more satisfactory in the end to all parties if the charges are fully paid before you go upon the stand. With the money in your pocket you can absolve yourself from all interest in the case, and escape any prejudice which may be cast upon your evidence.

It is also well to have the party retaining you, understand that you do not contract with him to become a party to his side, and interest yourself in the means of his success, any further than that you agree to teach as best you can, in answer to the questions that may be put to you, what is correct science and art in your profession, and that you will be for or against him, as his case may lie in the line of such evidence. If questioned about the terms of your employment, be sure, with your answer, to tell the jury of this understanding between you, and respect for your opinions will be assured.

Preliminaries having been settled and engagement fairly made to appear as an expert, the witness should lose no time which may be necessary to freshen his knowledge, and thoroughly inform himself upon the subjects about which he is to testify. He should procure from counsel of his side, if not otherwise informed, such facts as will enable him to know the field of knowledge which the controversy will traverse, and the direction likely to be taken. However well-informed he may think himself in this domain, he should not be satisfied until it is all gone over again and thoroughly studied at every point, and nothing, however small or great, left doubtful or uncertain, which can be made sure. It is his business when called, and the purpose for which he is called, to instruct the court and jury, by elucidating scientific facts with which they are unacquainted, and the laws and principles to which they appertain, that justice may be administered in the cause in action. His first duty, then, is to inform himself. He should not go upon the stand until he feels himself master of all that is known upon the subject upon which he is to be questioned. It will not be safe to conclude that although not accurately and well-informed, he certainly knows more about the subjects in hand than counsel, and as they can not expose his weakness, he will certainly at least appear learned. Observation teaches me that such a witness would most certainly victimize himself. For the members of the legal profession, I must say that no men are more laboriously industrious in professional duty, and respectable counsel do not come to the bar with their clients until they have marshaled all the aids which every department of knowledge can

afford their cause. No amount of effort is spared which may be necessary to thoroughly inform themselves in every line of inquiry, into which the evidence in the case is likely to lead. I have known an attorney, at the end of a day of weary toil, to go from the court room to the medical library, where he spent the whole night in the study of the structure and functions of the cerebro-spinal nervous system, and be ready in the morning to confound the medical witnesses with the scope and exactness of his knowledge, and lead them into doubt, contradiction and disgrace.

Some years since I was called to testify on behalf of the state in a case of alleged infanticide. Hon. Joseph E. McDonald conducted the cross-examination on behalf of the defendant, and during the two hours or more of its continuance counsel gave me occasion to tell all I knew about the physiology and mechanism of parturition, and although fresh from a careful study of the subjects traversed, I was astonished at the frequent opportunities afforded me to elucidate facts and principles which I did not happen to know all about.

I shall never forget the lesson of that day nor the man who taught it to me. It was my first experience upon the witness stand. The defendant, a girl of fifteen years, had concealed her pregnancy—so far as possible concealed her labor—and while her friends were watching over her she escaped from the house and made her way about a hundred yards toward a river near by, but at that point was overtaken with the pains which emptied the womb. She then seized a stone and struck the child upon the side of the head, literally crushing it by the blow. She then covered the child and secundines with earth and snow, and returned to the house as though nothing had happened. Shortly afterward she was tracked to the place of delivery, and the child found. I made the *post-mortem* examination. It was found that this girl had about that time been delivered of a child—that she was tracked from her bleeding person by drops of blood to where this child was found; that when found it was neither cold nor stiff; that in parturition the vertex had presented; that it had come to or near full term; that it had breathed, but not very freely; that the head was

crushed, as by a stroke upon its side ; that a stone lay near by which might have been used to make the stroke. There was not a link wanting in the chain which connected the mother with that dead babe. My study and notice of the case left me no doubt that the child was born alive, and that the mother, after it dropped from her, and while it lay gasping at her feet, had seized a stone, and, in the madness of her shame, at one stroke had mashed its head. Who could doubt her guilt and conviction with such facts against her? Counsel seized hold of the ball while it was yet without form in the womb, followed it through the long and sorrowing months of uterine life, studied the presentation at the os of the uterus, and the dilatation for the passage of the child, with the nature and application of the force which procured it and propelled the child in its curious passage toward the world. Every line of that wonderful pathway of the nations was critically examined, and every event that has happened to any traveler upon it inquired after. After tedious and dangerous voyaging the head of the child passes the os externum, and a period of momentary rest probably occurred to the mother—it might be some seconds, is sometimes many seconds. At this point a child sometimes respire ; they sometimes cry out ; they sometimes respire as freely as the state of the lungs in this child would indicate it to have done. Did not this child respire while thus partly born? Can not tell ; possibly it did. At this stage was not the head of the child accessible to the hands of the mother? Yes. Is it a mechanical possibility in this situation of mother and child that the mother could inflict the injuries observed on this child upon her unborn child? Yes. In this situation, should the mother forget herself and her offspring, is it not possible that she should crush the head of her unborn babe? It is possible. In the frenzy of her shame, might she not so forget herself? She might. Is it not possible that this child respired, as has been proved some do, and received the injuries which produced its death while still unborn, except the head? Possible, not probable. When it is remembered that in law a child must be wholly born before the injuries which produce its death are inflicted upon it to constitute murder, it will not be wondered at that at this stage of the

evidence the prosecutor entered a *nolle prosequi*. The lesson of that day to me was this: Besides the tricks of law, lawyers can learn medicine as well as doctors, and the safest way to treat them is to presume upon their learning, not upon their ignorance.

In that recondite subject, insanity, counsel are ever able to penetrate beyond what is really known, and no witness who is less than master of all that science teaches of the mind, can with credit to himself and profit to any, appear to elucidate the questions relating to the pathology of the soul.

Men who write books are neither so wise or so good as to be above suspicion in honesty and truth; and hence, books can not be introduced as evidence, with no chance to swear or cross-examine. But the medical witness may take authorities with him to the stand, and refer to them to refresh his knowledge, or read from them, if he may like; but he must adopt the extracts as his own opinions before they can go to the jury.

Thus well informed, in relation to the matters upon which he is to answer, the medical witness when he takes the stand, should be calm, confident and composed. His aspect should be that of the conqueror, rather than of the victim. He should demand that every question propounded to him be so stated that he can clearly understand its meaning. His first thought after the question, should be to sound the mind-theme of it, measure its purpose, scope, relation to the subject, etc. In settling upon an answer, think a moment of where it may lead, or what may follow it. Before the answer is begun, he should determine in the mind exactly what he intends to say, and so frame his sentences as to say just that and no more. The scope of the words should be carefully watched, that while answering the question, they may do nothing more. Dash all the powers of your mind, and all the resources of your knowledge and experience upon the question as soon as it is commenced, as you would water to quench flame; work hard and fast upon it, and when ready, not till then, give your answer. All this should be done in a state of calm deliberation, never in haste, and without delay. Such a witness is less likely to become confused in his thoughts, and he can never be blindly led into

inextricable mazes. He is continually studying the ground before him, as well as that which he stands upon and has trodden.

A self-consciousness of power and strength, arising from the complete knowledge of the subject in hand, is the most substantial source of courage and equanimity. The self-poised, deliberate, and withal well-informed witness, may, by a few words, establish a character with court, jury and counsel, that will enforce confidence in his opinions, and secure such respect as will save him from the merciless attacks that attorneys sometime make upon those in his place. These qualities are, to him, what the compass and helm are to the mariner—without which, he would drift here and there as wind and current may carry him, abandoned to the chances of fate.

During the examination-in-chief, there is supposed to be nothing to disconcert a witness. You are in the hands of your friends, who would not be expected to lead into trouble. This sense of security may be the cause of great disaster. The interest of the party for whom you are testifying, may induce his counsel to lead you to ground upon which you carelessly tread; but where in cross-examination you may be engulfed. It should be constantly kept in mind, that during the examination-in-chief, you are practically choosing your field of battle, every inch of which will probably be contested. Hence, every question should be answered with the certainty of a cross-examination before you, and with the assurance of deliberate judgment that the answer is right. If your evidence is of great value to the side calling you, there will be corresponding effort made by the opposite side to break it down, even if you, too, die at the same death.

If your answers are right, there is no need to change them on cross-examination. Stand by them. Defend every position from all attacks. Do not allow your points to be picked to pieces, or nibbled away, but obstinately maintain their integrity. Do not be frightened, or badgered, or bullied, or coaxed into a change of your answers; nor permit their force and effect to be weakened.

I can conceive of no place where I would more cunningly conceal, and more obstinately defend an error, than on cross-examination, a mis-statement in my examination-in-chief. I could scarcely be induced to admit or correct it, except by the certainty of disaster if not acknowledged. When one proposition has been taken from your subject, it is impossible to reason the extent of the injury the whole structure will sustain, however well the other parts may have been built.

But by all means keep cool. There is no where that the old proverb has more prophetic truth than here, that "Whom the Gods would destroy, they would first make mad." When other means fail, counsel sometimes resort to insult to disconcert a witness. In my observation in courts, I never saw an angry witness that was not victimized.

The medical witness should, so far as possible, divest his answers of technical terms and learned phrases, and clothe his thoughts in the language most easily understood. He should never advance beyond the strict limits which an answer to the question requires. Counsel are supposed to understand upon what matters the jury need instruction, and will so frame the interrogatories as to reach this end. Any advance of the witness beyond this limit, either for the display of learning or whatever else, may introduce new and unnecessary questions, in the end to confuse the evidence and confound the witness.

Nor should he give an opinion upon a matter which he does not understand. Should he be wrong, and the error be followed up, he may be led into disgrace, and forfeit the respect and confidence before secured. It will be found much safer, and in every way better, to confess a want of information where he can not feel assured of correctness. Intelligent lawyers understand how difficult are many of the subjects which we are called upon to elucidate, and will more readily excuse us for an honest confession of ignorance than for the pretence of wisdom which we do not possess. He should keep fairly within the bounds of his knowledge, and not dare to venture beyond.

The medical witness should be especially careful about giving definitions. Very much of the language of our science is not capable of a perfect definition. Suppose he were asked to

define inflammation. Too many, I fear, would respond with a statement which, when followed up, would lead into inextricable difficulties. By the more careful statement that it is a vital process manifested by many different appearances and associate conditions, few, if any, of which are constant and distinctive, so that we have not yet been able perfectly to define it, all this disaster would have been avoided. The same hints will apply to very many of the terms of our science. No man ever attempted to define insanity and got clear of the subject on good terms with himself or others. The inducement for opposing counsel to break down a medical witness are so strong as, when other means fail, to sometimes set such a net as this, and capture the unsuspecting victim, and wound him to death.

While it is true that the witness is employed to give evidence in the interest of one of the parties to the suit, he should be especially careful to maintain an aspect of impartiality, with no effort to overstate what may be for the benefit of one party, and with hesitation confessing what may profit the other. The jury will readily take in such moods as this, and the witness will thereby surrender his control of their assent. He should not contract to do anything, but give correct teaching, and by so doing, as though the parties to the action bore equal relation to him, he will secure and maintain respect and confidence.

These thoughts, which, if the occasion would allow might, at least with relief to myself, be greatly extended, I offer to the profession, with the hope that they may lead to more careful preparation for this increasingly important branch of professional duty. If, when before the courts, we would feel well, appear well, serve well and escape well, we must first learn well, then teach well, and constantly govern well. You will excuse me for saying that I know of no place where the medical profession is more often disgraced, than upon the witness stand; or where men, who elsewhere are able and honorable, seem so shorn of their strength.

We often hear hesitating and doubtful answers, and teachings without point or force from witnesses who are certainly well informed, and who elsewhere demand respect and secure confidence. In this position, they are uneasy and fearful, their aspect is subdued and cowardly; they seem only to desire a

close of the agony and a safe deliverance. Many others may be found, who in their evidence-in-chief acquit themselves well, but who on cross-examination, exhibit no power of self-preservation; they allow all the kernel to be eaten out of their teaching, leaving nothing but an empty shell.

Others, again, embrace the occasion to show off their good parts and exhibit the immense magnitude of medical science, as measured by ponderous words and learned looks, to the amusement of fools, the disgust of court and jury, and the disgrace of the profession.

Notwithstanding these damaging facts, and the growing distrust of expert medical testimony, lawyers acknowledge great indebtedness to the medical sciences, and that there could be no enlightened administration of justice without our assistance. The courts confer honorable distinction upon the profession, in asking the aid of the science of medicine in their noble functions, and the standard of our learning and art should then be upheld with most careful diligence, and our wisest knowledge.

Since the late session of the State Medical Society I am in receipt of the following communication, which is offered to the committee on publication, to accompany the foregoing paper :

STATE OF NEW YORK,
OFFICE OF THE STATE COMMISSIONER IN LUNACY,
ROSLYN, QUEENS COUNTY, May 24, 1877.

DR. WILSON HOBBS—*Dear Sir:* In reply to your note of the nineteenth instant I beg to say that I have been able to find but one American decision at common law bearing upon the compensation due experts as a *sine qua non* of their testifying. But this is explicit enough to sustain my views as heretofore expressed. There are two other decisions, *under the statute*, in Iowa and North Carolina, but they only go to the extent of giving a right to a physician or expert to compensation, as an extra witness fee.

The decision first above alluded to is that rendered in this state, in *The People vs. Montgomery*, 13 Abbott Practice Rep., N. S., p. 207, where the court said, in speaking of Dr. Hammond as an expert witness: "A witness meets the requirements of a subpoena if he appears in court when required to testify, and gives proper impromptu answers to such questions as are then put to him. *He can not be required by virtue of the subpoena to examine the case, to use his skill and knowledge to form an opinion, nor to attend, hear and consider the testimony given so as to be qualified to give a deliberate opinion in a question of science arising upon such testimony.*"

I am, very respectfully yours,
JOHN ORDRONAUX.

In the Third Indiana Reports, page 499, will be found the case of *Gaston vs. Board of Commissioners of Marion county*. Dr. Gaston was one of the physicians employed by the county at a given salary to attend upon the county paupers. While in this employment he was subpœnaed by the coroner to go fourteen miles from his office to make a *post-mortem* examination of the body of James Smither, and determine how he came to his death. The doctor failed to attend upon the subpœna, and an attachment was issued against him, which brought him to the place of the inquest. He then made the examination, and after being sworn, testified as to his opinion of the means by which said Smither came to his death. He was two hours thus employed. He presented a claim for compensation to the county commissioners, who rejected it. The court said (Perkins, J.) : "The service rendered in this case by Dr. Gaston was not covered by his employment to attend upon the county poor. He was entitled to no compensation for the service, so far as traveling and giving testimony in obedience to the subpœna were concerned, beyond that of an ordinary witness. Physicians are not specially privileged in this particular. But the expenditure of labor and skill in the *post-mortem* examination created a claim to additional compensation from some source. Either the coroner, who procured the service, or the county, should pay for it. We have no doubt that in a case where a *post-mortem* examination is really necessary, the coroner may, by his employment, bind the county to the payment for a sufficiency of professional skill to make the examination."

While this case does not directly discuss the question of compensation of experts as a *sine qua non* to their testifying, it bears relation, either directly or indirectly, to very much of the subject matter of the foregoing paper.

1. The subpœna is a command to attend which can not be disregarded, no matter in what capacity the witness is wanted. Dr. Gaston was brought to the inquest by attachment, after having treated the subpœna with contempt.

2. Having been brought upon the ground, he made no objection to conducting the *post-mortem* examination. After the completion of this, he was sworn to testify to the facts which

he had observed during the examination. In this he was but a common witness, and had no remedy but to answer the questions put to him, having come in possession of the facts. His attendance was compulsory; his examination of the dead body was voluntary, and could not have been enforced; the answers to questions as to the facts now became compulsory.

3. But Dr. Gaston also "communicated his opinion of the means by which said Smither came to his death." Herein he assumed the character of a skilled witness, but made no demand upon the coroner to have his fees assured him, and proceeded with his testimony. He afterward made up a bill of account for travel (fourteen miles), for the *post-mortem*, and for services as a witness. The Superior Court decided:

1. That he was entitled only to the mileage and fees of an ordinary witness; that the "physician is not specially privileged in this particular."

2. "Professional skill" creates a claim to additional compensation, and when the coroner needs the exercise of such skill it is his privilege to pledge the county commissioners in payment of its value. Knowledge and experience are necessary to make up skill, and this law teaches that when the public demand these (and, by parity of reason, private parties also), there is created a claim for additional compensation which the party requiring it is under obligation to pay. It is to shed the light of knowledge and experience (skill), that the expert is called into court, and there is no sensible reason why it is then any less valuable or less entitled to additional compensation than in a *post-mortem* examination at a coroner's inquest. It is equally professional skill in both places; equally valuable in both places; equally the property of the witness and no more the property of others in both, and equally the basis of a claim for "additional compensation" in both.

HOW TO SECURE MEDICAL LEGISLATION.

J. W. HERVEY, M. D., INDIANAPOLIS.

We have passed through a quarter of a century of organized effort to accomplish the ends and aims of our mission, as true votaries at the shrine of a profession whose history is replete with noble accomplishments. This society is to-day the oracle of our etiquette, the expounder of our laws, the tribunal of our grievances; it has harmonized all of the discords that disrupted our social relations. The medical profession of Indiana is to-day, under its teachings, sanction and usages, a union on questions of medical ethics.

There is one field of our labor, Mr. President, upon which we look back and see no harvest to gather. The records of this society is burdened with resolutions asking for the appointment of committees to go before the state legislature and ask for some law that we thought to be for the public good. We have asked for some legal standard of medical qualification by which the public might be protected against the extortions and wicked designs of unqualified tramps claiming to be doctors. We have asked for law to protect the people against the wide-spread sale and indiscriminate use of injurious nostrums. We have asked for the suppression of unwholesome trades and traffics. We have asked for a state board of

health—offered to serve on the same without pecuniary compensation—a board that should take cognizance of all influences detrimental to the public health. We have sent our best men with incontrovertible proof of the necessity of the measure asked for, and of the propriety of granting it, only to be repulsed with uncouth witticisms and disparaging jeers. We have failed in every instance; not one of the laws asked for has been placed upon the statute of the state. We must utilize the lesson taught us by this long concatenation of failures, to guide our future plans.

I should regret to have my name connected with any untenable theory, or to burden the records of this society with unwarrantable speculation; a devotion to my convictions of duty, however, impels me to say that any further committees to present our wishes to the state legislature, until the public mind is educated up to an appreciation of our motives and the necessity of the measure demanded, would be a waste of time and a sin against consistency. I would abandon the plan hitherto pursued, because it violates the most profound maxims in legislative jurisprudence, which is that "No law can successfully precede its public sanction." The people, from whom law-makers derive their power, must first demand these measures; then, sir, there will be no necessity for petitions to secure them. We have no right to blame the people, or their representatives, for lack of success; it is a legitimate sequence, and not a lack of public gratitude, or of ability to comprehend a great public necessity.

We have failed because the measures we have demanded are in advance of public thought; the people have had no teaching upon their utility. No reading matter upon the public health ever enters the popular newspaper or periodical literature of the country. The people have not been able to reach that stage of knowledge which would prepare them for the comprehension of the great blessings that these measures would entail upon them. They are never talked of around the hearth-sides of the homes of the masses. The people, therefore, are no more to blame than they were in the days of Harvey and Jenner for not comprehending the circulation of the blood or

the blessing of vaccination, until by public teaching, painful dissections, and exhaustive experiments, these men wore into the public mind the utility—into medical literature the necessity—of accepting the discoveries that made these names immortal. The people are no more to blame than they were for not adopting the opinions of Fulton by a law of congress to set steamboats and steamships to navigating the rivers and crossing the ocean, until he had demonstrated the practicability of his plan by successful experiment upon the Hudson; or that of Whitney, of building a railroad across the Rocky mountains, over the continent to the Pacific ocean; or that of Professor Morse, of the magnetic telegraph; or Field, of sending the wires across the ocean, until public thought traveled up to these inventions, discoveries and necessities. It took twenty years' teachings to make the public give these men all they demanded. They established new mile-posts away out beyond the bounds of popular teaching. They had to hew out and cut through the rocks and forests of ignorance to make highways upon which public thought traveled up to them. We must do the same.

We have not succeeded, and will not succeed under the same circumstances, for precisely the same reason. If we are not contented to accept these lessons of history, we might as well turn our backs upon the cherished purposes of our life, burn the records of the society, shake hands over the grave of our buried hopes, and adjourn to meet no more.

One year's experience as a committeeman on the state board of health, sent out by this society, to which I gave the best efforts of my humble ability, convinced me that all future efforts in this direction would be unavailing until the people sent up men with instructions to give them this kind of legislation. I sent forms of a petition drawn up by the chairman of this committee, in obedience to the instructions couched in the resolutions by which the committee was raised, to physicians in different parts of the state, to procure signatures to, and send back to the committee, that we might present the same to the legislature. I also sent the same petition to lawyers, ministers, and other gentlemen whom I thought might take an interest in a matter of so much public interest. The letters that came in

answer to my letter of transmittal, convinced me that even the profession has some members wholly ignorant of the science of public health. Had I space in this paper to give you the entire correspondence, I need give no other argument to convince this society that education must, finally, precede any effort to secure legislation upon this subject.

The governor did recommend the measure to the legislature, through statistics and statements presented to him by our committee, for which I here take occasion to compliment his intelligence. The measure had some able and sincere friends in both houses, who deserve our gratitude, but all of these were but as evening twilight to the gloom of the starless night. We did accomplish more in this direction, according to my convictions, than has ever been accomplished before; indeed I became alarmed at the nearness we approached a state board of health—one that would have done us more harm than good. It would not have had enough appropriations of money to have made it of any use worth the mentioning; besides that, it would have been composed, as I believe, of discordant elements. It would have been so composed as to make its usefulness an impossibility.

I was opposed to the passage of the bill as it passed the senate, for the reason stated. Its history would have been one of bickering and discord. I am opposed to any board of health composed of medical men of different medical creeds. They would differ so essentially that discord would disrupt their deliberations. The medical members of such a board should be men of unquestioned ability, undoubted integrity, and of the regular profession.

Then, Mr. President, what shall be the proper course to pursue? How shall we exert an influence, as a society, to secure the education that must precede the accomplishment of our desire to promote and protect the public health?

I shall not believe, Mr. President, that the Indiana State Medical Society, with its learning and ability, and the devotion of its members to the public good, is not competent to devise some means for the consummation of its own ultimate mission—a mission of high and sacred trusts. If our brotherhood

could give its thousands of lives a sacrifice upon the altar of duty in a successful effort to arrest the spread of the plague in Europe—if it could give so much labor, research and means to lessen the ingress and spread of the black death, the most deadly of all human scourges; if it could, by public and professional teaching, so educate the people as to rob cholera of much of its virulency by hygiene and sanitation—can we not so educate the public mind of the citizens of our state as to warrant an appreciation of our efforts to protect them against the formidable armament of the cholera, so as to make them understand to some extent, and appreciate local and general causes that favor the production of epidemics and spread infection and contagion, so that they will understand the importance of proper policing, drainage, sewerage and ventilation, the consequences of intermarriages, and the transmittal of hereditary influences, so as to see the good that would result to them and their offspring from the observance of a well-regulated system of public health regulations, under the direction of a thoroughly competent board of public health?

A careful consideration of the causes that produce the deaths of our citizens leads me to a conclusion that at first inception startled me. Taking my own observation of thirty years practice in the state, the information gathered from correspondence of men in different parts of Indiana, strewn through the different medical journals, and the information gathered from the records of this society, which I have not space to here tabulate, I am authorized to assert that at least twenty deaths in every one hundred that occur in this state are the result of preventable causes. If this statement is entitled to any credit, and I here challenge criticism upon its veracity, the fact stares us in the face that at least two thousand lives are lost in our state annually that might be saved. The worth of two thousand lives each year to the state can not be estimated by dollars and cents. Of this twenty per cent. of deaths from causes that might be prevented, one per cent. results from the use of nostrums. I think exact data would warrant us in making this per cent. much larger, but we will not transcend the bounds of the estimation already made. Could all of the dead who have died

from this cause alone rise before us, an army of wasted mortality would stand before us as formidable, and more so, than could be mustered from the battlefields of the rebellion. Their ghosts would terrify the thoughtless public and arraign them before the tribunal of a common brotherhood to answer for their murder.

For the purpose of formulating a plan for our future operations, permit me to make the following suggestions :

1. I would have this society appoint a standing committee on the public health, to take charge of all communications upon that subject, collect and tabulate such statistics as they could collect upon all subjects pertaining to this department, and make an annual report thereof, together with such information and suggestions as to said committee is deemed important and proper to this society.

2. I would have this society request each of its members, also each member of the profession throughout the state, to report to the committee on public health the occurrence of all epidemics, the circumstances attending their appearance, the extent to which they prevailed, and any modifying influences upon the same. Also, deaths from any preventable cause, and the circumstances attending the same. To report any local influences in any way controlling or modifying the public health in any way.

By such correspondence every section of the state might be reported to said committee, and all the influences in any way affecting the public health be fully ascertained. By this plan we could learn the influence of water dams, stagnant streams, ponds and pools ; the influence of the different seasons on different sections, the effects of ditching, of cultivation, etc. We would learn whether certain diseases were increasing or diminishing in frequency under different influences, so that the public health committee could make a full report of all these facts, and do so understandingly. Such information, properly collected and arranged, would be of incalculable value to the future medical historian, as well as to us in educating the people upon the necessities of such laws as would counteract the evils and utilize the good.

3. I would have made from this report an annual address to the state legislature through the governor or some other officer. I think the governor would be the proper officer through whom it should be transmitted, as such an address or report would contain the information that the governor would need to make such recommendations to the state legislature as he might think proper, and I have no doubt that with such a report before the governor and each member of the legislature that we would have no trouble in getting what we ask.

4. I would in this report ask for and set forth the necessity of having an annual appropriation made to defray all expenses necessary to carry out the suggestions couched in said report, so far as the same could be done at reasonable expense and as would result in great good. In this way the Indiana State Medical Society might run, under its own supervision, a board of health that would supersede, for a time, the necessity of any other.

5. I would have as many of these addresses distributed among the people as the state would provide means to do. The state might be induced to order a large number printed for distribution. I am of the opinion that if such an address, made to the people upon the questions of public health, was offered to them at a fair price, that it would be extensively bought and read. There is no class of reading matter that is consumed with more avidity by the masses than that pertaining to health and disease. Proprietary and patent medicine venders utilize this feature of the public taste to introduce their stuff among the people by flooding the country with almanacs, pamphlets and handbills, which are distributed gratuitously, and are hung up in each house in the land, at first as calendars, but let the family—any one of them—become sick, the almanac is drawn down and a specific for the disease, no matter what it is, is soon found, and sent for before the doctor is, and paid for, but the doctor often is not. It would astonish you to hear the story of these egregious puffs around the hearthsides in the cabin, cottage and mansion. They are at the tongue's end of men, women and children.

The people want to know all they can about health and longevity; so I think I am justified in concluding that such a report need not cost the society one cent—that it might be made to pay something, if we desire to do so, by selling the right to publishers.

6. I would make it the duty of this committee to urge the necessity of teaching, as far as could be done in our common schools, such rudiments of the science of public health as is essential to the health of every individual and every community. There certainly is nothing of more importance to every body, in all classes of society; no public teaching would serve so good a purpose, or be more popular among the people. Some of the states have already taken a start in this direction; others must ultimately follow in the wake of advancing public sentiment.

These are my suggestions, Mr. President. I am no stickler for this plan, if some better one can be devised. I shall, however, adhere to this one till that better plan is formulated. If by this paper I can arouse such comments and criticisms as will bring better minds than my own to the consideration of this necessity, I shall have accomplished fully enough to gratify my personal ambition. If I can, by this paper, set thoughts to work upon some plan to counteract this flood of almanac and handbill literature that is pouring its poison upon the public mind—that is making villainous fortunes from the ignorance and credulity of the people—I shall be content. If this society can banish that host of nostrum-mongers that is growing fat off the blood and tears of our afflicted brothers and their families, it will accomplish a work that will give it a place in the hearts of the people. If this society does the work pressing upon the convictions of its enlightened membership, I will have reason to rejoice that I took some humble part, as a common laborer, with those of better ability. When another quarter of a century shall have crowded upon our associate existence, history will vindicate our motives and public gratitude will herald our achievements.

If we, through a standing committee on the public health, send to the proper authorities that information which can not fail

to culminate in the inauguration of our cherished policy for saving human lives—saving suffering and in prolonging life, we shall have done something to emulate the example of our brethren who introduced and taught without pay, that system of hygiene and sanitary regulations that has conquered enemies that scourged all of Europe in the fourteenth century, and a system that has appeased the wrath and lessened the terrors of those preternatural foes of the human family, that no armies could conquer—a system that has nearly, if not entirely, swept those scourges from the calendar of human ills—we shall have done something that will elevate the standard of popular gratitude and appreciation of the physician in Indiana.

I am aware, Mr. President, that some may think this plan a bid for popular applause; that it will be coming down from the dignity of a learned profession, to battle with the stormy elements of a public enterprise.

If such a construction can be put upon this paper, it will be by a technical construction of the application of medical etiquette not sanctioned by the higher law of sincere devotion to duty, which recognizes any honorable effort aimed at a more exalted utility.

These thoughts are my honest convictions of duty. If I be wrong, I shall not tread the mistaken path alone. Error betrays the best of us. I think, sir, that we have all been mistaken about the impropriety of entering the public journals with our pleas for humanity that are wholly for the public good. I would scorn the man who would advertise himself as a practitioner by any mode than that of a thorough qualification and proposed application to business, but to be deterred from the duties of carrying forward an enterprise that will bless the people and save thousands of lives, for fear of having a place in the journals, is a delicacy that I can not accede to. I wrote during the last year, twenty-five correspondences for the newspapers, which were all published under the head of a "public health department." I was asked to furnish the matter for making a public health department a permanent thing in one of the leading journals of the state. I think that it will soon be a fixed feature in newspaper enterprise, and that we should give

to such a department such facts as will be of public interest and usefulness. The articles which I furnished were copied largely into other papers, and seemed to be of great interest to the people. My name was withheld from most of them, that no prejudice might be attached to the articles by calling them doctor's schemes.

I regret, Mr. President, that I have been compelled to take so much time, but what I felt compelled to say, if I said anything, could not have been abridged.

Thanking you for the compliment of listening so patiently, I remain an humble votary at the shrine of my convictions of right and duty.

DILATATION AND CONTRACTION
OF
BLOOD-VESSELS AND TUBULAR STRUCTURES.

R. E. HAUGHTON, M. D., INDIANAPOLIS.

This involves the question of the physiological action of opium, belladonna, ergot, strychnia, physostigma, bromide of potassium, chloral hydrate, veratrum viride, gelsemium, and many other agents used to affect nerve-centers, and thereby influence the circulation, in certain pathological states. It also involves the pathology and treatment of certain diseases of the nervous system, as hyperæmia, congestion and inflammation of the brain, spinal cord and meninges, anæmia of the cord and brain, together with tetanus and other convulsive diseases, as epilepsy, chorea, puerperal convulsions, hysteria, etc., etc.

We approach the consideration of this question with a consciousness of its difficulty, with a knowledge of the fact that the questions have been considered by able investigators, who as yet do not agree, and which leaves the subject *sub-judice*, and, in some sense, a *questio vexata*. That certain questions concerning the nervous system and its relations, both anatomically and physiologically, are now accepted, and have passed into general appreciation, is true, yet it may be well for us to examine, somewhat briefly, the foundations of our knowledge

upon which we shall, at least as intelligently as may be, make a diagnosis and attempt to make out indications for therapeutic agencies. Who has not, as he stood by the bedside of those afflicted with nervous disease and watched the play of symptoms and the progress of disease, had reason to distrust his knowledge of the complicated machinery of the nervous system, and in view of all that has been taught and written so contradictory in terms, to question very much the interpretations of disease and the effects of remedies by the authorities? Yet there is progress, and we are nearer now to the truth than we have been since the early days of our science. In looking over the entire history of idiopathic disease, of whatever kind, I am more fully of the conviction of the great truth uttered by Dr. Southwood Smith in his treatise upon fevers when he said that "Lesion of enervation is the first link in the chain of morbid events." To present this question understandingly, we must begin with the anatomical facts of the subject, and upon this basis interpret the physiological ones, thence proceeding, it may be said, from the known in the direction of the unknown. This we do in algebraic formula, to determine the unknown quantity, and thus we proceed here.

1. The first anatomical question presented is this: What are the true relations of the cerebro-spinal system to the sympathetic or organic nervous system? Or, conversely, what relation does the organic nervous system bear to the cerebro-spinal system?

2. If related, to what extent, and in what way do the sympathetic ganglia and nerves affect the tissues and functions of the body to which these filaments are distributed?

3. The interpretation of stimulation by galvanization, which is shown to be, in experimental observation, contraction of tubular structures.

4. The interpretation of stimulation by remedies, as to their primary and ultimate effects upon the nerve-centers, and through these upon the blood-vessels and tubes.

5. The fact that section of nerve filaments or nerves, including the spinal cord, corresponds to paralysis and dilatation of tubular structures.

6. To the query, can remedies produce such an influence upon nerve-centers as to produce paralysis of power and lead to paralysis and dilatation of tubular structures? we answer, yes.

7. That the anatomical arrangement of the two departments of the nervous system makes them co-ordinate, and that nervous or sensory influences proceeding from the cerebro-spinal system ordinarily secure tonic contraction of muscular fibre, no matter whether striated or non-striated.

8. That influences, sensori-motor, whether direct or reflex, and exerted by the sympathetic through its ganglia and nerves, are those of dilatation of tubular structures, and are inhibitory to excessive stimulation or its effects, when exerted upon the cerebro-spinal system.

Finally, that if any cerebral or spinal nerve, or any number of them, are so affected by any cause, as disease or remedy, which latter may be a tonic, so as to induce a paralysis of these centers, then the effect of the organic nervous system is to produce the ordinary result of dilatation in the vessels of such a part.

As the whole question of the pathology of diseased states of the nerve-centers, and the knowledge of the physiological and therapeutic action of remedies, as applied to the control of such conditions as alluded to, will turn upon their power to produce these conditions of contraction and dilatation of blood-vessels and other tubular structures, therefore we have regarded this subject one of the greatest importance.

1. We begin by tracing the anatomical relations of the sympathetic to the cerebro-spinal system. The sympathetic is made up of ganglia and nerves of communication between the ganglia.

2. Branches of communication with cerebral and spinal nerves.

3. Branches of distribution to the arteries of supply, especially in the viscera throughout the body, forming upon the vessels plexuses which encircle them, and are both spinal and sympathetic. These branches of communication between the ganglia and between the ganglia and the cerebral or spinal

nerves "consist of a white and gray portion, the white filament passing from the spinal nerve to the ganglion, and the grey filament passing from the ganglion to the spinal nerve." (*Grey's Anat.*, p. 663.) As a corollary drawn from this relation, and proved so far by all experimental observation, grey matter generates and white filaments conduct nervous influences, called sensory and motor, and can conduct from the center to the periphery, or from the periphery to the center. Included in every spinal and sympathetic trunk we have the motor and sensory filaments in the same sheath—the first conducting only sensorimotor influences to muscular fibre, the latter only sensory influences; hence grey matter, by its cells, generates force, which is transmitted in thought, sensation, volition, by the white matter.* Touching the question of origin of the sympathetic, most, if not all, the recent investigators agree that it has origin in the cerebro-spinal system, and that the class of nerves called vasomotor are derived exclusively from the cerebro-spinal system, and do not originate in the ganglia of the sympathetic. This has been demonstrated by Schiff, Ludwig, Thiry, Cyon and others. The difficulty is to determine the exact location of these vaso-motor centers.

From 1712 to 1725 Petit demonstrated that the influence of the sympathetic was from below upward toward the head, and various experiments have shown that this system has an influence most important and regulative upon the history of nutrition, secretion and animal heat. Bernard repeated these experiments in 1851, proving increased vascularity and an increased temperature of four degrees in a given surface. Brown-Sequard repeated these experiments in 1852, reaching the conclusion that the elevation of temperature was dependent upon an increased supply of blood to the tissues. It is now definitely accepted, however, that vaso-motor nerves belong to the sympathetic, but have origin in centers in the cerebro-spinal axis.

*"All our knowledge of the structure and endowments of ganglionic centers and nerve trunks shows that they bear but a complementary relation to each other. The vesicular substance, having for its office (the generation of force) to originate changes which it is the function of the fibrous structure to conduct."—*Carpenter*, by *Smith*, eighth edition.

Again, it is proved that centers in the cerebro-spinal axis preside over special functions, as the genito-spinal center and cilio-spinal center, as shown by Budge.

“There is ample evidence that the movements of the heart may be powerfully affected by causes acting either upon the cerebro-spinal system or upon the sympathetic, and while stimuli acting upon these centers will increase the force of its contractions, it is also well ascertained that the vagi nerves originating in the vaso-motor center of the medulla-oblongata may transmit influences of a precisely contrary nature, which will inhibit, regulate or restrain the cardiac movements. It is a fact that the heart will continue to beat after its removal from the body, and also after removal of the entire cerebro-spinal axis, especially if artificial respiration and circulation can be sustained; also, that anencephalic monsters have a regularly pulsating heart, all clearly proving that the heart is not essentially or exclusively dependent upon a central nervous system for its rythmical action. It is now ascertained that its motions are governed by cardio-motor ganglia, which are most likely of the sympathetic class, generating within those centers the force which generates and sustains its rythmical actions. The careful dissections of Remak, Lee, Beale, Bidder, Ludwig, have shown that there are small ganglia and nerves distributed in the heart, and in addition, special collections of ganglia in three places. The first, known as the ganglion, of Remak, placed near the opening of the inferior vena-cava; the ganglion of Bidder, in the left auriculo-ventricular septum, and the ganglion of Ludwig, near the center of the heart. These ganglia do not have the same function, and Stannius proved by experiment that the first two are excito- or cardio-motor centers, while the third is an inhibitory center. Rythmical impulses originate in the ganglion of Remak and Bidder, which excite contractions, while the ganglion of Ludwig acts as an inhibitory or restraining center. There is another view held, viz: That the rapid action of the heart is not due to natural causes, but to stimulation, proceeding to irritation of accelerating fibres and ganglia. Any ganglia receiving or giving off motor or sensory nerves is capable of being stimulated by mechanical, chemical, electric, thermal or

therapeutical stimuli. The influence of oxygen, the accumulation of carbonic acid in the blood, and many other agencies, will influence the heart action. The incoming of the blood stream into the cavities will stimulate these heart centers, which transmit them to the pneumogastric or vagal centers by inhibitory or depressor nerve fibres, or by accelerating fibres, as stimulation, or depression of heart action and circulation may be important to the vitality and function of the tissues. It is probable, from all the facts before us, that the accelerating centers and fibres are represented in the vaso-motor centers by sympathetic nerves, and any stimulus acting upon the heart or blood-vessels, which require more or less blood, these centers contract or dilate the vessels just as the heart is increased or diminished in frequency. It is also found to be true that the walls of the blood-vessels contain ganglionic centers which aid in producing the same result.”*

There are centers in the cerebro-spinal axis called vaso-motor centers, and found to exist in the medulla-oblongata, and probably lower down, and most likely higher up in the sensory ganglia of the brain. The pneumogastrics or vagi arise from the medulla-oblongata in the grey nucleus forming the lateral part and floor of the fourth ventricle, and from the lateral tracts of the cord, just behind the corpora-olivaria and has filaments passing with it, and also within the cord which are from the vaso-motor centers, while the motor fibres descend through the spinal cord, and are distributed to the heart, passing through the inferior cervical ganglia and first dorsal. We remark (*en passant*) that it is now definitely accepted that vaso-motor nerves belong to the sympathetic, and may yet have origin in centers in the cerebro-spinal axis. It should be remembered that vaso-motor nerves do not belong exclusively to the sympathetic, but may be found in the cerebro-spinal nerves, which has been conclusively shown by Bernard. As a matter of history, Valentine referred to filaments of the sympathetic, which were distributed to the blood vessels and influenced their calibre. The connection and distribution of sympathetic nerves may be concisely stated thus: “In the cervical portion of the sympathetic the

* *Carpenter*, by *Smith*, eighth edition.

presence of the following nerve fibres have been satisfactorily determined and demonstrated.

1. "Vaso-motor nerves for the corresponding half of the head which arise from a center situated in the medulla-oblongata which governs the tone, not only of the vessels of the head, but of the entire vascular system. This is a ganglionic center, and is constantly in action. Its influence can be abolished by section of the spinal cord in the cervical region.

2. "Fibres distributed to the dilator-pupillæ, which arise from the cilio-spinal center, seated in the medulla-oblongata, which is one of constant activity, and is influenced in the same way as the respiratory and vaso-motor centers; hence, in dyspnœa, the pupil dilates, and the vessels distributed to the eye contract."*

3. "Secretory fibres passing to the salivary glands, irritation of which contracts the vessels, and thus modifies the character of the secretion, while section of the same nerves is followed by dilatation of the vessels."

4. "Nerve fibres possessing an accelerating, and others a depressing or an inhibitory influence upon the heart. The accelerating nerves passing by the third branch of the inferior cervical ganglion, which is a sympathetic ganglion, and the first and second branches form the root of the depressor or inhibitory nerve."

5. "Sympathetic fibres passing to the central cerebro-spinal organs, which stimulate the nerves which retard or inhibit heart action."

The splanchnic nerves which arise from the lower six thoracic ganglia, contain fibres exerting an inhibitory, and others an exciting influence over the movements of the intestinal secretory fibres, acting on the kidneys (Bernard), vaso-motor nerves influencing the calibre of the entire abdominal system of blood vessels. "In addition to these, numerous branches are distributed, which aid in forming the cœliac, mesenteric, renal, supra-renal, spermatic and hypogastric plexuses, and these, when irritated, occasion movements in the parts to which they are distributed."

**Carpt.* by *Smith.*

“Of the ophthalmic ganglion, the branches are distributed, not merely to the iris, the radiating fibres of which are made to contract by their agency, but also to the globe of the eye, and especially the ciliary processes. So we might follow up the influence of the several ganglia, and show their action upon function by their agency upon blood-vessels.” “So also we may go a step farther, and show that the spinal cord acts as a great ganglion for all the nerves which spring from it, and in addition the ganglion on the posterior roots of sensory nerves also sends filaments into the branches which they help to form, as also must those fibres which are sent from the proper or true sympathetic ganglia into the roots of the same nerves, a large part of them being distributed upon the vessels of the cord itself.”

If, then, it be asked what inferences we are entitled to draw respecting the functions of the sympathetic system of nerves from their anatomical distribution, we are fully justified in saying that the muscular tissue, which enters into the structure of these vessels—especially the smaller arteries—is supplied essentially from this department of the nervous system. In full accord with this,* it is found that stimulation of the sympathetic ganglia, whether by direct or reflex irritation, leads to contraction of the vessels and consequent diminution in the activity of the organic processes—such as secretion, nutrition, growth and development, while their paralysis, as seen in section of the cervical sympathetic, produces the opposite condition of dilatation of vessels, afflux of blood, and increase of vital properties. Schiff, Ludwig, Thiry and Cyon have demonstrated experimentally in the most conclusive manner, “that vaso-motor nerves are derived from the cerebro-spinal centers, but there is no proof going to show that the filaments going from sympathetic ganglia into cerebro-spinal centers do not have centers of influence in the same location. Ludwig and Thiry found what has been stated that section of the cord in the cervical region, produced dilatation of most of the blood vessels, and that galvanization of the cord at its lower cut extremity caused contraction of the blood-vessels.

**Carpenter* by *Smith*, last edition.

These views have now been repeatedly confirmed by experiment. There are two separate and distinct conditions of the nervous system induced by galvanization or stimulation, and the opposite one of paralysis induced by section of the spinal cord or section of the sympathetic. It is quite remarkable that section in either case produces the same result upon blood-vessels, viz :

“1. Dilatation of vessels.

“2. Determination of blood.

“3. Increase of temperature.

“4. Hyperæsthesia.

“5. Increase of vital properties of muscle, blood-vessels or gland, thus affecting the functions in motion, increased nutrition, and increased secretion.”*

Per contra, it is proper to remark that stimulation by galvanization or otherwise, produces the opposite conditions to these, whether applied to the cerebro-spinal centers or to the ganglionic centers, viz :

Galvanic or other stimulation.

1. Contraction of vessels.

2. Diminution of blood supply.

3. Decrease of vital properties.

The physiological application of these views, which are not now universally accepted, are the results of careful experimental observation, and so far as trial and experience has gone, are demonstrated by the action of remedies.

We remark here that this is the true and royal road to science in medicine, and physiology and therapeutics have joined hands and are walking this royal road, thus making therapeutics what it ought to be—the climax and crowning adornment of professional knowledge. What are our efforts at the bedside grappling with disease, endeavoring to arrest its progress and save human life, without a concise and accurate knowledge of the power and scope of remedial agencies? Dr. Rabuteau, a celebrated French investigator, says: *La thérapeutique est la branche la plus importante de la médecine.*

*Brown-Sequard, *Physiology and Pathology of the Nervous System.*

First, then, there exists in the organic structure an arrangement for providing the tissues, according to their several needs, with a normal or increased supply of fluid blastema, which is either for the purposes of healthy nutrition or for the necessities of a perverted or excessive nutrition, as is found in the conditions of hypertrophy or inflammation, or changing the conditions to those of atrophy and degenerations of structure, in which we have a diminished and perverted action, indicating clearly diminished and perverted nutrition. These are among the pathological conditions which follow most surely the conditions of increased or diminished blood supply.

Another fact in pathology is presented to us, viz: That structure determines vascularity, hence if there is a changed or perverted action in any tissue by which its nutrition is augmented, then it determines vascularity or blood supply. In summing up the facts upon both sides of the question of blood supply—that is, too much or too little—we have upon one side the pathological conditions of hyperæmia, congestion, inflammation, hypertrophy, and very many morbid growths, which are determined by the cell aberration and vascularity of the tissue. Upon the other side we have anæmia, effusions or dropsies, hemorrhage of a passive kind, nervous disease of various types, these latter being, as a rule, the result of a changed or perverted and diminished nutrition of the tissues thus changed.

The physiological action of remedies, interpreted upon this basis, requires them to be classified according to what is known of their action upon nerve-centers. These are the classes:

1. Depressor Motors.
2. Excitor Motors.
3. Mydriatics.
4. Analgesics, } Relieves pain.*
5. Anæsthetics, }

The first, as a class, are those which lessen or control the agency of the spinal cord, either in its direct or reflex agency. These are represented by the *physostigma* (calabar bean), bromide of potash, ammonium, sodium, hydrate of chloral, nitrate

*Horatio Woods' *Materia Medica*.

of amyl, lobelia, tobacco, gelsemium, or gelseminum, conium, etc., etc. The second class, excito-motors, is represented by strychnia. The third class are found in three remedies, viz: the mydriatics—belladonna, stramonium and hyoscyamus, the effects of which are to produce dilatation of the pupil, and the effect of each being so far apparently "identical." The fourth class, viz: analgesics, or those the chief clinical use of which is the relief of pain, which are anæsthetics and analgesics. Opium, however, and *cannabis indica* are the only ones proper to be included and considered in this class. While we can not fully consider these classes, in their peculiar actions, we desire to present, by contrast, some of the most important considerations connected with them as manifested in and upon the nervous system, and especially the vaso-motor centers, or, in other words, the manner of their action in producing dilatation or contraction of blood-vessels.

The generalization of the effects of these remedies are only important in so far, by their action upon nerve-centers, they produce the conditions manifested to us in stimulation to any degree, which corresponds to the fact of the contraction of blood-vessels (that is, capable of producing such a result), and conversely producing by the action of a remedy taken from any one of these classes, the opposite condition of dilatation of blood-vessels, which corresponds to section of spinal cord, or sympathetic.

First then, we will take opium. It is a powerful narcotic and relieves pain (being in this an anæsthetic), by the effect it exerts upon the cerebro-spinal centers. It is a toxic agent, and in its effects produces paralysis of the vagal centers, which increases paralysis of respiration, the rate of breathing being reduced from eighteen or twenty to four respirations per minute. This is practically in its results paralysis of vaso-motor centers, including the origin of the vagi, which affects both the centers of respiration and circulation. Now let it be remembered that the ordinary influence of the vaso-motor centers, situated in the medulla-oblongata, is to secure the ordinary tonic contraction of blood-vessels, and when paralyzed the result will be, and is dilatation of the vessels. Now, what is true in the largersense

is also true in the smaller sense, viz: That the effect of opium, morphia, etc., is a dilatation of the blood-vessels, unless it be controlled by some inhibitory influence which controls the dilatation within the limits of the physiological needs of the organism. This is done in ordinary conditions of the system by the counter agency of ganglionic centers. Opium and its preparations correspond to paralysis of vaso-motor centers, which, according to Brown-Sequard, are—

1. Dilatation of blood-vessels.
2. Afflux of blood.
3. Increase of vital properties.

We will take belladonna next, which is the physiological antidote of opium. What are its results as contrasted? Opium affects the pupil to contraction through the nerve centers by a stimulation, first of the oculo-motor nerve centers, mostly the third cerebral nerve, by which the circular fibres of the iris are stimulated to contraction, and finally, as death approaches, by a paralysis of these centers, dilatation is finally induced, which proceeds upon this idea, viz: That as the oculo-motor centers, viz, the origins of the third pair which send filaments through the ophthalmic ganglion and ciliary nerves being paralyzed, contraction does not occur, but on the contrary dilatation. It can not occur otherwise than this, for if the primary contraction were due to a paralysis of the sympathetic, the after dilatation would be impossible. That is to say, that if the influence of the sympathetic, which goes to the radiating fibres were paralyzed, the pupil would not dilate even though the oculo-motor were paralyzed.

It is a well known fact in clinical experience that the effects of opium are counteracted by the effect of belladonna, which dilates the iris as uniformly as opium contracts it. This view led physiologists and pathologists to believe that there was in cases of poisoning from either remedy antidotal influence in the use of the other, and such a view is confirmed by the concurrent testimony of many in the profession. The manner in which these remedies affect contraction and dilatation of the pupil is this: The anatomical fact is accepted now that there are circular fibres, and these are opposed by the radiating

fibres, and that the circular fibres are under the control of the oculo-motor nerve-centers and the third cerebral pair, while the radiating fibres are under the control of the sympathetic filaments passing through the Gasserian ganglion by the ophthalmic branch of the fifth pair, which is sensori-motor.*

Budge and Waller have shown that the filaments of the sympathetic which produce dilatation have their origin in the spinal cord, proof of which is found in the fact, viz, that if the spinal cord can be stimulated between the sixth cervical and second thoracic nerves, which is found to embrace the inferior ciliospinal center, both pupils become dilated. It also is proof of the statement that the sympathetic system has its origin in the spinal cord and brain, and is, according to the most reliable investigators, essentially, though not exclusively, a motor-center—a vaso-motor center, regulating the action of vessels—and that its paralysis is characterized, as is that of the cerebro-spinal centers, by dilatation with afflux of blood, increase of the vital properties of tissues, and that its excitation, direct or reflex, produces contraction of blood-vessels and all the results of such contraction.

The conclusion in regard to the physiological action of belladonna is, that it is a stimulant to the vaso-motor centers, increasing, in moderate doses, blood-pressure, and when in excessive doses the blood-pressure falls, and with it there is dilatation of capillaries, which is paralytic in character, which action is a loss of the muscular irritability and contractility of the muscular fibre; but, so long as this is not lost, galvanic stimulation of a sympathetic nerve will not fail to produce contraction in the tributary vessels. Hence we are to regard this remedy in toxic doses as producing paralysis of the non-striated muscular fibre, thus producing failure of heart action and dilatation of vessels. The temperature is reduced, and there is a general paresis of both motor and sensory nerves, arresting muscular and glandular cell action.

One word as to the antagonism of opium and belladonna: In 1570 this antagonism was asserted, and again prominently by Dr. Norris in 1862, and later still, in 1874, by Dr. J. Hughes

**Gazette Medicale*, 1851, Nos. 41 and 44.

Bennett, who asserted their antagonism forcibly, and his experiments certainly justified it. That this antagonism does exist is admitted, and there are ample evidences in the clinical experience of the profession to prove it; and moreover, the experience extends to the treatment of poisoning by other toxic remedies besides opium. I think that the true method of using the antidote to secure its antagonism, is hypodermically, as it gives the most rapid and sure introduction to it. Summing up its effects upon the nerve-centers, it may be regarded as one that paralyzes vaso-motor or cerebro-spinal influence, and a stimulant of the ganglionic centers and nerves.

Ergot, by its known action on uterine muscular fibre, has achieved a reputation most invaluable, which is now heightened very much by its use and action upon the nervous system, being from its known influence in producing contraction of non-striated muscular fibre, used in congestions and inflammation of spinal cord and brain, and especially commended by Brown-Sequard, Hammond, Davis, Beard, and others. It has been used to produce contraction of blood-vessels, and by this influence lessening the supply of blood and producing decrease of vital properties. This is found to be the case in sub-involution, chronic metritis, hypertrophy of the uterus, and fibroid tumors of this organ. It is employed in all forms of hemorrhage, active or passive, and is especially valuable in hæmoptysis when given hypodermically, producing sudden and surprising arrest of hemorrhage, and it has now been applied to the treatment of most all forms of disease which affect or are connected with the circulation, as aneurisms, enlargement of the spleen and liver, in fact in all cases which show increased quantities of blood in a given structure. Proceeding upon the same idea, we find it used in chronic diarrhœa and dysentery with marked beneficial results, as well as in many other forms of disease.

The action of this remedy is upon non-striated muscular fibre, and it acts upon it wherever it may be found; and if so, it must produce its action upon the nerve centers which regulate or stimulate this kind of fibre, and this has been shown clearly enough to be the sympathetic nervous system. Clear and undeniable evidence of this is shown when vessels are found

failing to contract, when the ganglion regulating a given area had been extirpated. Under such a condition ergot fails to produce its accustomed result of contraction. A word as to the most eligible mode of its administration: Two forms are presented to us, viz, Squibbs' fluid extract, or the Inspissated extract made at a low degree of heat, dissolving the residue in water and filtering, making each grain represent six of the crude drug.

Dr. Eulenberg gives the following formula:

R Ergotini grs. ij.
Glycerinæ.
Aquæ Destil., aa, ʒss.
M. *Sig.* Five to ten drops, hypodermically.

In the use of depressor-motors and excito-motors, physostigma represents the first and strychnia the second. The effect of the depressors upon the motor-centers and nerves, and through them upon the muscles, is, by their influence upon the primary, and secondary, and tertiary centers, the tertiary centers being in the spinal cord, and through these affecting the terminal distribution of nerves on the muscles. This latter is no doubt affected by the blood distributing the poison so as to paralyze the nerves or their centers. These evidences of its power are shown in its effect upon the heart in lessened power, approaching a paralysis, general muscular weakness, ending in complete paralysis, so that even stimuli applied to the muscles show their irritability exhausted. This result can only be obtained by impairing or exhausting the reflex power of the spinal-center, which is a complete paralysis. The effect of this agent is at first a stimulus to the action of non-striated muscular fibre. Afterward, it depresses or slows the heart, increasing force in the arteries, and finally inducing their paralysis and dilatation. The effect of stimulation of function in any case is finally exhaustion of power and all its results, as shown in all instances where final paralysis of function occurs as a result of stimulation. The difficult question arises here, does galvanic stimulation of the cervical sympathetic dilate or contract the vessels and also the pupil?

It has been held by various authorities that if it fail to expand a contracted pupil, it is because there is a paralysis of the sympathetic, and this corresponds with all experimental observation made by section, which is paralysis. As the sympathetic arises out of the spinal cord, and the effects of this remedy is to paralyze the sympathetic nerve fibres which are distributed to the radiating fibres of the iris, hence, the action of this agent is at first a stimulus to the action of non-striated muscular fibre; afterward it depresses. Therefore, the contraction which is usually seen is induced by the action of the oculomotor nerve fibres, acting upon the circular fibres of the iris, inducing firm contraction. The use of the remedy is to affect the spinal cord and its blood-vessels, so as to repress excessive excitability, lessen blood supply, and decrease vital properties, which is found to be the fact in spasmodic muscular action in tetanus and all cases of nervous disease where there is an exalted or excessive reflex action of the spinal cord, in hysterical convulsions, in the toxic influence of strychnia, etc. Hence in physostigma, bromide of potash, and others of this class (depressor motors), is the physiological antidote and cure of excessive nervous irritability. Conversely of what has now been said of depressor motors in cases of toxic action, by these we have the antidote effect in strychnia, nux vomica, ignatia, atropia, etc., which excite the reflex action of the cord and prevent paralysis and death to the functions, and finally prevent somatic death.

The question of the nutrition of the vessel wall in these conditions of dilatation and contraction is one of the factors which plays an important part in certain diseases of the nerve-centers, as general and partial paralysis. Virchow, Rokitansky, Solomon, and others, place much importance upon an increase or hypertrophy of the connective tissue in the brain and spinal cord, and Bonnet carries this idea into the sympathetic ganglia. This condition of the connective tissue is regarded as a cause of general paralysis, and it is also an effect, and is one of the conditions of this state of the vessels. A change of the structure is one of the conditions of impaired, perverted or arrested circulation, and it is quite clear that both large and small vessels, including capil-

laries, may themselves be affected in their intimate structure, and thus may so affect the distribution of the blood that the nutrition of tissue is impaired, perverted, increased or diminished; hence a chronic or acute inflammatory action may be induced outside of the vessels in the connective tissue of the brain and spinal cord, which may be general paralysis or progressive locomotor ataxia. The pathogenesis of some of these obscure forms of nervous diseases, when approached from this direction, begins to clear up, and we already know of the conditions and subsequent results of disease in vessels in thrombosis, embolism, atheromatous, degeneration, aneurism of capillaries and arterioles, softening or hypertrophy, sclerosis. But we have not yet studied these conditions in relation to the brain and cord so fully as elsewhere. Here the influence of the vaso-motor system makes its power felt upon the proper nutrition of the brain tissues, so as to lead to various morbid changes which are not yet settled upon a permanent pathological basis. In congestion and anæmia, the two opposite states of tissue, so far as blood is concerned, are produced by the power of the vaso-motor system sending blood and nervous influence to the vessels and tissues, and may thus induce all the variety of alterations manifested in the same brain.

A paralyzed sympathetic gives rise to the dilatation of blood vessels which it supplies, while an irritated one gives rise to contraction, and the same course operating at different points may produce both of these conditions. What are the effects of a revulsive or derivative? I answer, two. First, Dilatation of the vessels at the point of contact. Second, Diminution of blood in remote vessels by reflex influence.

In conclusion it is very difficult to trace the relations of structure, physiological and pathological, especially as there is much in therapeutic action which is so apparently contradictory. Yet, as I study these questions, I am more and more fully convinced that there is a law of therapeutic action, based on physiological structure, which has not yet been fully understood and interpreted, and I believe that Brown-Sequard has grasped the key to the explanations of most problems connected with the treatment of nervous disease when, in his experimental observations,

he took section of the spinal cord and cervical sympathetic as representing paresis or paralysis of nerve power, when occurring from other causes, including remedial agents, ending in dilatation of blood vessels, and increase of all vital properties; and, *per contra*, that stimulation of cerebro-spinal and sympathetic centers produced contraction of blood vessels, diminution of blood supply, and decrease of all vital properties.

The deduction as to remedial agents is this :

1. That by inducing these conditions, as above alluded to, or an approach to them, we have, so far as is given to us by the action of remedies, the power to control and cure a large class of diseases called nervous, which have been vexed questions in all the history of the past. That certain classes of remedial agents will produce such action upon the nerve-centers, and through these upon the circulation, there can be no doubt, and when we can reduce our administration to an exact science, as to dose and effect, we shall see greater diminution of the lists of mortality than statistics now give us, and which has been diminishing ratio-progressively. To do this requires a careful study of the anatomy of the nervous system.

2. A careful study of its physiology, and lastly, a careful and experimental use of remedies in disease, including the observations by experiment upon animals, to determine physiological action and therapeutic uses and doses of remedies.

Therapeutics is walking hand in hand with physiology and pathology, and is fast becoming the most important of the various branches of medicine.

THE THERAPEUTIC PROPERTIES OF OPIUM.*

L. L. TODD, M. D., INDIANAPOLIS.

In offering a paper on so trite a topic, there is but little promise of originality. The subject, though broad enough in its territory, has been so often traveled over and so carefully explored that it is next to impossible to proceed in any direction without soon falling into some beaten path. Still, the importance of the subject to every medical man, in whatever department he may labor, whether as surgeon, specialist or general practitioner, is deemed sufficient apology for its introduction.

It is not over-estimating the uses and qualities of this drug to say that, it occupies to-day a larger place than any other known remedy, and, with a very few exceptions, it covers more ground than the rest of the *materia medica*. Though it has been substituted at various times by this and that article of less importance, it has never been superseded, exerting, as it does, so general and yet so special an influence over the animal economy that no organ, tissue or function of the body remains unmodified by its action. Modifying the several processes by which life is maintained, secretion, enervation, respiration and circulation, its broad application and various uses in disease

*Reported from Marion County Medical Society.

commend it to the medical philosopher as the best adaptation of means to ends that comes within the scope of his knowledge. In speaking of opium space does not allow, nor does the importance of the subject demand, the separate mention of the several subordinate principles into which it is divisible. There are a number of them, each somewhat peculiar in its qualities, intimately known, however, only to the analytical chemist, and of but little practical importance to the medical man in the use of the remedy for the treatment of disease. The crude article, as recognized in pill or powder, with the tincture and its principal alkaloid, morphia, are all that it is necessary to mention as fair representatives of its value in medicine.

MORPHIA. It is more readily dissolved, more rapidly absorbed into the system, and consequently produces a more active impression upon the brain and nervous centers, besides being available for subcutaneous application. It is, therefore, a more desirable remedy where the ready effects are required for the relief of active spasm or of violent pain, as well as in cases of unconsciousness or loss of intelligent volition, or in great gastric disturbance, where subcutaneous medication is required. As it spends its effects more rapidly upon the nerves, it is not strange that it is followed by more nervous disturbance during the subsidence of its action, and such is the opinion of many who have used it extensively. Especially is this noticeable in nervous females, who find its use frequently followed by a great deal of gastric disturbance and other evidences of vital depression. Crude opium is more tardy in its digestion and absorption, brings the system more gradually under its influence, acts less vigorously upon the nervous centers, and is to be preferred to the alkaloid where a steady constitutional impression is desired to be maintained, and in diseases of the alimentary canal remote from the stomach, so that its local effects may be the better had upon irritable and inflamed surfaces, instanced in some degree in diseases of the Peyerian glands, in typhoid fever, and more especially in dysentery. These are about the only differences worthy of note between the two forms of the drug. The principal or primary action of opium

is upon the nervous tissues, its other effects being secondary and explainable through that medium. Then considering how largely, as a factor, nervous irritation enters into all pathological conditions, we may well appreciate the value of a remedy which, in a measure, gives us control over it, and in the local commencement, where, indeed, if it does not precede very soon follows; then the cerebral centers respond, and the irritation is reflected back with increased violence upon the diseased part, and what seemed to be purely local soon becomes a constitutional condition. Here, perhaps, is the most important of its effects shown, viz, in cutting off or isolating the diseased part from the common sensorium, by lessening the function of the excito-motor nerves, thereby controlling reflex irritation or severing the diseased portion from its sympathetic connection until the pathological condition has subsided and healthy action is re-established.

1. As an *anti-spasmodic*, no medicine is so efficient in relaxing spasm and in controlling irregular muscular movements which depend upon unhealthy nervous action, hence its value as a remedy in tetanus, colic, spasm of stomach attending gout, dyspepsia and cholera, spasm of the ureters in nephritis and in the biliary ducts during the passage of gall-stones, and in various convulsive affections.

2. As a *febrifuge* it is indispensable, no matter what other remedies as laxatives, alterants, sedatives, or anti-spasmodics we may employ. As a sudorific it combines with ipecac and potassa. It is the usual accompaniment of mercurials. With sedatives, as tartar-emetic, aconite or veratria, it is given in conjunction, and if not combined with them is very soon expected to follow, for the correction of some of their faulty actions, or as an antidote to their poisonous effects. With quinine it allays the irritability induced frequently by that drug, and also adds its power to the latter in interrupting the periodicity of fevers. Its control over the circulation enables it to relieve local congestions, acting as a sedative to the heart and arteries, filling the capillaries, promoting perspiration, thereby lessening temperature, and last, but not least, it comes to our aid in procuring sleep—no less indispensable in disease than in health. This

last property is peculiar to opium as a narcotic, and is effected not alone by its direct action on the brain, but by putting a quietus to local disorders, as alluded to, upon which wakefulness so often depends.

3. As a *special stimulant* of the *brain*. Not a few disorders consist essentially in a depressed or debilitated condition of the cerebral nervous centers, and it is of the greatest importance to apply a stimulant to these nerve centers that shall not materially excite the circulation. Thus in the cold stage of fever almost approaching collapse, and where high febrile reaction is likely very soon to supervene, the indications for its use are obvious.

Then in low grades of fever, where the patient is laboring under the effects of a blood poison which is being slowly eliminated from the body by its natural emunctories—as in typhus or typhoid fever, or in typhoid-pneumonia, where the brain is acting feebly from the effects of a limited supply of oxygen, or when rendered anæmic by copious hemorrhages, whether from disease or injury, in any and all these conditions opium commends itself to us as the remedy par excellence, though it should be used with due regard to the fact that small or moderate doses (which may be repeated frequently if necessary) produce stimulation, while from full portions great danger is to be apprehended from the depression that would inevitably follow.

4. In *hemorrhage*, other than cerebral, it is the first general remedy that the surgeon puts his trust in, and no matter what adjuvants he may employ in connection with it, of vegetable or mineral astringents, in the various formidable hemorrhages that occur, whether uterine, pulmonary, intestinal or vesical, opium is the sheet-anchor, ergot not excepted. The effect under all these conditions is much the same by its control over the circulation in maintaining or restoring its equilibrium, by its effect in constringing the vessels through the vaso-motor nerve, or what may be but the expression of the same in another form, by its sedative or anodyne effect in quieting the irritation that accompanies hemorrhage. In the lungs the effect is materially aided by quieting the irritating cough, and in intestinal hemorrhage by controlling peristaltic action. In all cases the result is

due to the effects upon the vital properties of the tissues, without any chemical effect upon the blood, as it has no chemical reagency beyond the very small per cent. of astringent contained in the crude form of the medicine, which is insufficient to produce any noticeable effect.

5. *In the suppression of discharges* not hemorrhagic, its action is accounted for much in the same manner alluded to, which is that of arresting or lessening the secretions, which it does, with the exception of the skin; this it largely promotes.

6. As an *anodyne*, this quality is perhaps too little valued by medical men, who incline to look upon it as more of a palliative than a curative means, forgetting the fact that pain in a part is sufficient to produce a determination of blood with all the sequelæ of inflammation. This, as Prof. Flint says, is illustrated in neuralgia of the supra-orbital nerve, and the resulting inflammation of the conjunctiva, and who can say that other affections more serious in character, but more obscure in their operation may not be similarly accounted for? As an instance, pleuritis, the first notice of whose presence is pain in the affected part. Flint says, "life is often destroyed, not in consequence of injury done to the inflamed part, but because the vital powers are inadequate to bear the continuance of the disease." The great Sir Benjamin Brodie, as he lay upon his deathbed, being worn out by an incurable malady, regretted that he had in his professional labors given so little attention to the relief of pain. For this purpose opium is the great remedy. There are a few remedies that serve well as adjuvants, but it has no equal in the pains resulting from the various inflammations. In the various nervous or spasmodic affections, a number of which have already been mentioned, besides incurable ulcerative and cancerous diseases throughout the body, that sap vitality by slow marches and yet render the life of the victim intolerable while it lasts, to such it is a boon beyond price.

7. *In inflammation*, little remains to be said without repetition. In the various forms of inflammation of the chest and abdomen, it is the universal remedy. This of course includes pneumonia, so frequent in this latitude during the cold, damp months, with whose treatment it is almost as intimately asso-

ciated as the preparations of cinchona in intermittents and remittents. In that fearful malady, puerperal peritonitis, common to all seasons and climates, and alike fearful whenever and wherever met, this great remedy is alone equal to the emergency, given in greater or less quantities, according to the needs, sometimes the most extravagant doses, often repeated, to the utmost extent of vital toleration, until it conquers an enemy that could rarely otherwise be met successfully. Notwithstanding the long use that has been made of opium, and carefully as its actions have been studied, we are far from a complete knowledge of its powers. Such an understanding would no doubt enable us to explain many of its effects which we are compelled in the present state of our knowledge simply to accept as facts. Its power in producing contraction of the pupil has not been satisfactorily explained, and can not be accounted for by being stimulant or sedative, as no other stimulants or sedatives produce the same impression; neither is it by producing congestion, for that does not always imply the same result. Belladonna is more distinctly sedative than opium, and dilates it, but whatever may be the mode of its action, whether directly upon the ciliary nerves or by irritation of the optic-centers, we can not tell, and perhaps it would be about as candid to say, with Headland, "that it is an action altogether peculiar to opium."

8. *As to the contra-indications*, they are not numerous, and still worthy of mention :

1. The best authorities agree in the opinion that infants are peculiarly susceptible to its poisonous influence. Dr. Allison, of Edinburg, saw death produced in a child four weeks old by four drops of laudanum, and two and a half drops produced the same result in one three days old. In the strong tendency to spasm in children under three years of age, which in many cases is the result of engorgement or acute congestion of the brain, we recognize a continual restraint to its use, as its tendency in producing determination of blood to the brain is one of its well-known effects, the predisposing causes being the disproportionate size of the brain to the body, the excitability from its large circulation, and the want of resistance in its tissues to extrava-

sations in congestion. Still there are cases where opiate remedies are indicated, and even in moderately high temperatures, for the alleviation or prevention of greater evils, though the instances are doubtless very rare.

2. To the aged and infirm, opium is a peculiarly dangerous medicine, and the same rule may be here recognized as in the use of belladonna, viz, that the tolerance of the remedy is as the vital force of the patient, and consequently it should not be administered to such incautiously; bearing in mind that even small doses, repeated frequently for a time, may become cumulative in effect, and especially is this danger to be regarded when there is bronchitis, so common to old age—the viscid accumulations already embarrassing the respiratory process, which will tolerate very little additional depression without producing asphyxia.

3. In patients of any age, in acute bronchitis, before secretion has become established, it tends to aggravate the inflammation by interfering with the process which nature has intended for its relief, or cure.

4. In acute hepatitis, it is contra-indicated in consequence of its strong tendency to arrest the secretion of bile, thus locking up that poisonous element in the substance of the gland; this, however, may be counteracted in part, by the combination with mercurials and other remedies that promote such secretion.

5. Its effects in inflammations involving the brain and meninges of the brain and spinal cord. Considering the variable circumstances under which inflammation of these organs, or tissues, may present themselves to us, as modified by age, temperament, season, locality, or epidemic influence, and the many indications that opium fulfills in the treatment of disease, it is exceedingly difficult to lay down any absolute rule for its condemnation, or for its use, that shall be always applicable. In the present state of our knowledge it remains for us to give attention to the rational indications that arise, regardless of names or prescribed methods.

In inflammation of the brain, or of the brain and its immediate meningeal connections (which for the most part represent the same indications for treatment), there is but little to be said;

the weight of authority (when the condition was more than functional) has been, and is now, decidedly against it; the first indication being to lessen the determination of blood to the affected part, and that being generally acknowledged as one of the principal effects of the drug. But for that form of disease known as cerebro-spinal meningitis, which, for the most part, invades the same structures, and involves the same pathological changes, there is a good deal of difference of opinion amongst authors and practitioners, opium having some zealous advocates for its use, though most of our reliable authors mention it in very conservative terms. Flint, in view of all the tests of the remedy made by him, or under his notice, says: "It remains to be ascertained by experience, whether opium may be useful," and of large, or heroic doses in the disease, that "the testimony is discrepant." Watson or Aitken neither speak encouragingly of its use; and most of the modern works on therapeutics do not recommend it. Hartshorne mentions it as only a last resort. Niemeyer and Tanner incline to it, the latter considering the sub-cutaneous injection as the best mode of administration, and in the monograph upon the subject, by Stille, a number of experimenters are cited, a majority of whom commend its use. And yet, when we consider the rate of mortality acknowledged by them all, we can not but agree with Dr. Sangrado's servant (in part at least), and say "trust to nature;" for surely the results could not have been much worse if left entirely unaided, whilst they might have been far better. The death-rate in our armies from this disease, during the winter of 1863-4 was from seventy-five to eighty per cent. of those attacked. A reliable medical officer saw twenty-eight cases consecutively treated by opium, and in each case an opportunity was afforded for *post-mortem* investigation; and in many localities in private practice the results were almost as unfavorable.

Considering the unknown character of the disease at that time, as most practitioners and surgeons were experimentally unacquainted with it, and then remembering how important an agent opium was considered in army practice, prescribed, and that well too, almost by rote for all diseases of an inflammatory character where pain was sufficient to attract notice, surely the

remedy must have had an ample trial, and considering how very unsatisfactory were the results, can we say less than that it was a most disastrous failure? All methods, indeed, have proved so unsuccessful that we have no well established mode of treatment, and are still at sea. Surely no disease has left more plainly marked its means of producing death, as hundreds of *post-mortems* have been made, and the pathological conditions in various stages were present in a large majority of cases, as engorgement, congestion, effusion, adhesion, supuration, etc. One author says that twenty-eight out of thirty cases presented these unmistakable evidences of its presence. Was not local hyperæmia or engorgement of the vessels of brain and cord the initiatory stage of invasion in every case? Now is it not the first indication to lessen the determination to the cerebral and spinal membranes, that effusion may be prevented or lessened, and is it not beyond cavil, and universally acknowledged by authors and practitioners that opium fills the vessels in these parts? And upon what premise can its curative powers be based except it be upon the principle that "like cures like?" There are other narcotic remedies, if of less general potency, far more capable of meeting our necessities in this disease. With these and their appropriate adjuvants, refrigerants, revulsives, etc., much better results in the treatment of this dangerous and heretofore intractable disease may be obtained, but this is not the appropriate place for their discussion.

THE INDISCRIMINATE USE
OF
HYPODERMIC MEDICATION.

J. I. ROOKER, M. D., NOBLESVILLE.

In this short article my intention is not to enter into a lengthy discussion on the subject under consideration, but aim simply to call the attention of the society to what I deem is becoming dangerous, the indiscriminate use of hypodermic medication. Early advocates of this mode of treatment proposed to confine its general use to those cases wherein the stomach was too irritable to retain medical agents, or there was irritability of deglutition, claiming the stomach to be the proper receptacle for all remedies where proper. But how different now! It was but a short time since that a respectable physician showed me an old and much-worn hypodermic syringe with as much pleasure as an old veteran would show his trusty blade, and claiming that he had used it more than one thousand times. When I informed him that in an extensive practice of more than twenty years I had not often used the instrument, he appeared to be perfectly astonished. He further informed me that he was not alone in its wholesale use—that his neighboring physician used it quite as often as he did. I find that in the vicinity of this physician almost every person is familiar with this mode of treatment, and

the kind matron will recommend or suggest the propriety of an hypodermic with all the *gusto* that our old mothers would a dose of Epsom salts or a mustard-poultice. The result of this is an increased demand for narcotics, to an alarming extent. I am satisfied that this is not the only particular vicinity, but it is so throughout the country. It was but yesterday that one of the oldest physicians informed me that he knew of a number of persons who had become habitual opium-eaters from the too frequent use of hypodermic injections. A few days since a lady called at my office, who had frequently been under the treatment of a hypodermic gentleman, for some trivial malady, presenting me with a number of empty vials, among which were several morphine bottles. Not only this, but every feature of her face and an unsteady step, too plainly told the fatal story. The primary effect of an hypodermic injection is not unattended with danger—the formation of abscesses, the infection of erysipelas, or probably the communication of syphilis or other contagious and infectious diseases, and sometimes fatal narcotism are some of the primary effects. I might go on and enumerate case after case to substantiate my proposition; but what has produced this? I am of the opinion that in part it is a fashion, for certainly that abominable thing called fashion does find its way into the medical profession. I think I know of some physicians who change their fashion in the treatment of disease quite as often as their tailor changes the cut of their coats. A medical friend informed me that the use of compound cathartic pills had gone out of fashion in his place; that they might do in the army, but would not do in a private practice; that his fashionable patrons had about quit defecation, micturition, and all such dirty habits. Another cause which I think has assisted in producing the abusive use of this valuable mode of treatment is the well-known weakness of some to display instruments. It is well known that many can not extract the smallest root of an old tooth without the display of many and divers-shaped instruments, and chloroforming the patient. Many are not able to enter the lying-in room without the display of from fifty to one hundred dollars' worth of obstetrical instruments. It appears to produce such a wonderful and sublime awe on all concerned. O, Lord! how much longer are these things to continue?

TWO CASES OF
FATAL PERITYPHLITIS.*

WM. LOMAX, M. D., MARION.

On the ninth of September, 1874, about eight A. M., I was called, in consultation with Dr. Williams, to see Willie C—, *æt.* seventeen years. Learned that on the afternoon of the fifth the patient was attacked, in the right iliac fossa, with pain of varying intensity, rather paroxysmal in character, at times being quite acute and again but slight. During the night this measurably subsided and on the following morning there was but little suffering. A cathartic, administered in the evening, operated at two A. M. and again at nine A. M., the discharges appearing healthy and, as the parents say, no pain accompanying the action of the bowels. After this the pain speedily grew more constant and distressing, causing the family to call in Dr. Williams. He found exquisite tenderness of the caput coli and an inclination to curve the body to the right side, to flex the right thigh upon the body and the leg upon the thigh, a position he maintained up to the time I saw him. When first seen there was decided fever, with nausea and vomiting, and the most obstinate constipation of the bowels. One small and two large doses of calomel had been given, and these had been

*From the Grant County Medical Society.

followed by Epsom salts, enemata, etc., without a thorough evacuation of the bowels since first seen by Dr. Williams.

The tenderness had ascended from the region of the caput coli to the ribs on the right side, thence over the entire abdomen, and was now so intense and exquisite as not to tolerate the least movement of the body or pressure over the abdomen. There was a slight icteroid appearance of eyes and face, probably from the liver becoming involved in the inflammation; pulse one hundred and forty and feeble, incoherent yesterday and last night, less so to-day, but there was a wild stare of surprise expressed in his countenance; extremities cold, urine free, normal, and voided without ardor notwithstanding a large blister over right side of hypogastric region, resulting from the application of cantharides. I thought this a case of peritonitis, at first circumscribed and local, which had spread over the entire abdomen, possibly increased by unduly persistent efforts to goad the peristaltic action of the bowels. Treatment:

R Pulv. opii gr. ss.
Sod. bicarb. grs vj.

M. Fnt. chart. No. i. Sig. To be given every two hours.

Also,

Spts. aeth. nitros. ℥ss.
Ammon. acet. ℥i

M. Sig. ℥i between above.

Apply warm fomentations steadily over abdomen.

Five P. M., sleeping quietly; rousing up occasionally, saying he felt well; looked more comfortable; pulse one hundred and forty. Eight P. M., comfortable; pulse one hundred and thirteen; continued treatment. On the twenty-fifth I was again called in, owing to the absence of Dr. Williams; found patient free from fever and jaundice, and without pain in the right iliac and lumbar regions; learned that he had been slowly improving until to-day, when he was suddenly seized with a pain in the region of the spleen, ascending into side of chest and neck, and about union of the ensiform cartilage with the sternum, ambulating from place to place and causing him to shriek most vociferously and uncontrollably from its intensity. He said it was confined to a spot so small that the point of the finger would cover it.

The pulse ran up to one hundred and sixty-six per minute.
Treatment:

R Morph. sulph. gr. ss.
Sod. bicarb. ℥ss.
M. Fnt. chart. No. vi. Sig. One powder every twenty minutes
until relieved.
Apply hot fomentations over seat of pain.

I remained a short time and saw the treatment carried out until the severity of the suffering had subsided, when I directed the treatment to be continued until Dr. Williams, who had charge of the case, should arrive and continue such treatment as he might think proper. I regarded his present condition as one of wild and almost uncontrollable neuralgia, occurring in a debilitated condition of the system, in which the presiding power of functional co-ordination had lost its control, and that sensibility, blindly drifting from place to place in torturing eddies of excruciating local suffering would soon overcome the power of life were it not that the pain temporarily subsided, giving a brief recuperative respite. Were these terrible developments of sensation to observe a specific and suitable gauge they would probably result in local inflammations. Dr. Williams, who soon returned and took charge of the case, informed me subsequently that his suffering returned, and became so intense it could not be controlled by any means, requiring him to be held on the bed by force, until relieved by death, which took place at ten A. M. of the following day.

At half-past ten A. M., December 30, 1875, I was called to see Samuel C—, brother of the deceased, a young man *æt.* twenty, in good health until early this morning, when he was seized with a severe pain in the region of the caput coli, for which cordial was freely given and sinapisms applied over the seat of pain; but without relief. On arrival I found him suffering intense pain in the part, pulse fifty-two, extremities cold, hands purple, tongue clean, gums rather pale upon margins, neither thirst nor nausea, bowels regular, urine free, exquisitely sensitive to pressure over seat of pain, no known cause for attack. Had eaten a late supper, but experienced

no inconvenience from it. Had been engaged in painting, to within a week, but not later. In the absence of all other explanations of its presence and character, I suspected there might be lead poisoning in the case. Treatment:

R Morph. sulph. grs. ij in ch. vi.

Sig. One powder every half hour until relieved, then often enough to control the suffering, also apply large hot fomentations over the abdomen.

Four P. M. He was stupid from the anodyne; but little pain; circulation improved; extremities becoming warm; at times entirely free from pain; vomited once, after taking a powder; continued treatment as might maintain immunity from suffering, should pain return; gave large enemata of warm water with a small amount of soap added to the water. Nine P. M. He was sound asleep, under the influence of the anodynes; one enema had been given, sufficiently moving the bowels, after which the anodynes were followed by greater rest; continued treatment as required to control suffering.

December 31. Rested comfortably through the night; no pain, but exquisite tenderness on pressure over caput coli. Some febrile reaction this morning.

R Iodin. Tr. $\frac{3}{4}$ iss.

Glycerinæ $\frac{3}{4}$ viss.

Apply freely over seat of soreness and keep part enveloped in cotton-batting

Evening, bowels moved tolerably freely, discharging scybulous matters; continued other treatment as was necessary. Oleum ricini, should bowels not act spontaneously.

January 1, 1876. Rested comfortably since yesterday, until about four o'clock this morning; pain returned with intense suffering; the slightest movement or pressure could not be tolerated. He could not speak, without intensifying the suffering; answered questions by nodding or shaking the head; more or less fever; pulse one hundred and six; no nausea; bowels not moved since yesterday morning; some enlargement and hardness in course of ascending colon. A few enemata had been given in the latter part of the night, but passed away without

discharge of fæces. Treatment consisted of small doses of morphia and bitartrate of potash, given every hour until relieved of severe pain; occasional enemata of warm water and soap, continuing the liniment, and fomentation as before. Half-past nine A. M. Relieved of intense suffering.

R Hydrarg. proto-chlor. ℥j.
Sod. bicarb. ℥ij.
Fnt. chart. No. iv.

Sig. One powder immediately, and repeat in two hours; then every three hours until all are taken. Continue other treatment.

Four P. M. No return of suffering; free from pain when perfectly still; lies partially on the right side, with thighs semi-flexed, the slightest change being prevented by acute pain; continued treatment. Nine P. M. Pulse, one hundred and twenty; no paroxysm of pain, though soreness and tenderness had followed the ascending and transverse colon to the left side; bowels not moved; took all the alterative cathartic powders but one; voided urine slowly, on account of the tenderness and soreness preventing voluntary efforts to expel it. He said this was the cause of inaction of the bowels; he felt like they would act, but found it utterly impossible to make any effort to assist, on account of the pain it excited. The posterior lumbar region was very sensitive to pressure; continued treatment; should enemata fail to evacuate bowels, give oleum ricini.

January 2. Rested very well during the night, under mistake of the nurse, who gave a third of a grain of morphia every three hours, when there was no pain whatever; not the least pain, unless excited by pressure or attempts to exercise the body or limbs; tenderness and swelling the same; pulse, one hundred and six. In addition to frequent enemata a dose of oleum ricini was given and retained; felt like bowels would be moved, but could make no efforts to move them or pass urine; continued treatment. Night. Bowels moved freely, without pain; urine free; pulse, one hundred and two; was resting comfortably; continued treatment.

January 3. Rested comfortably last night; pulse, one hundred and six. Evening. Pulse, one hundred and four; bowels

were moved before noon; voided urine freely and without inconvenience; tumefaction in region of colon appeared to be subsiding, though tenderness remained acute; but little fever; continued treatment.

January 4. Was somewhat sleepless last night, but free from pain; but little fever this morning; pulse one hundred and two; tongue heavily coated, dry and brown; no nausea; bowels not moved; tumefaction and tenderness of abdomen were same; commenced in the right inguinal and iliac regions and followed the line of the ascending colon to the hypochondrium, with notable swelling and tenderness in its course; bore pressure better and could move body with less inconvenience. Gave

R Spts. æther. nitros. ℥ss.
Ammon. acet. ℥iss.
Verat. fluid ext. ℥ss.

M. and Sig. ℥j every three hours during fever.

Night. Rested comfortably through the day, when still, but felt stupid and prostrated at night; dryness of throat, slight cough, causing intense pain in affected part; surface was warm and moist; pulse, one hundred; bowels not moved; directed treatment to be continued. In two hours was called hurriedly, on account of an alarming change being suddenly developed; found face and the upper half of the body bathed in a profuse perspiration, hands cold, feet dry and warm; great nausea and prostration, making efforts to vomit, but threw up only a few coagula of blood; pulse regular, and only eighty-four; there was less tumefaction of abdomen, and pressure was better borne; had taken but two doses of the diaphoretic, the last of which was four hours before this symptom showed itself, which I could not well think caused this sudden ebbing of the powers of life. Under the use of stimulants and anodynes this depression soon passed away, and he was directed to continue the treatment, leaving the veratrum out of the diaphoretic.

January 5. Comfortable through the night. Morning pulse seventy-two, night, seventy; apyrexia; comfortable when still; soreness and swelling abating; tongue clean; bowels not moved since day before yesterday. A dose of castor oil was

given, which was followed by excruciating pain in ascending colon, when an enema of warm water was given, and the bowels promptly evacuated. Continued treatment.

January 6. About as usual last night and to-day until to-night; was seized with nausea and vomiting of a dark-green bilious matter, possibly caused by taking diaphoretic mixture containing veratrum, but the nurse is positive no such mistake was made. Under similar treatment to that used the evening before the symptoms passed away, leaving him comfortable again.

January 7. Steadily improved; some appetite. In evening nausea came up, but passed away without inducing vomiting. After this his improvement appeared to steadily progress up to the eleventh, when I was compelled to be absent a few days, leaving him in charge of my brother, and, as I thought, with very fair prospects of a good recovery. He continued apparently to do well until about noon of the thirteenth, when he looked badly and complained of an indescribable feeling of discomfort in the chest, and, as he expressed it, "all over," but without special pain; had taken some breakfast, but remarked that it did not taste well; the pulse was feeble and increased in frequency; some cough. Upon examining the chest a tender point was found between the seventh and eighth ribs, very sensitive to intercostal pressure, but which had not previously been observed by the patient; auscultation detected the presence of pneumonic sounds; for this he was put upon a solution of ammon. chlorid. and iodide of potassium. In the afternoon my brother was hurriedly summoned to him on account of an alarming change for the worse. In a paroxysm of coughing a profuse expectoration of bloody, purulent sputa had taken place. At first bright red, it soon became offensive, more thick, and dark, as if the blood had been detained in the bronchial tubes until partially coagulated. A large amount was raised by hawking and slight coughing, causing very great alarm as well as extreme prostration; respiratory sounds could not be heard in any part of the right lung; a full dose of acetate of lead and morphia was administered to arrest the hæmoptysis, and every means resorted to and persistently employed through the night

to support the waning powers of life. The bowels acted well and spontaneously, giving a healthy-appearing discharge. On the morning of the fourteenth there was great general prostration, but the lung was so far relieved of embarrassment as to admit air freely into the upper and middle lobes; little or no respiratory sound could be heard in the lower lobe. At each inspiration there was a distinct click heard, as of an air bubble bursting into a cavity containing a fluid, which was interpreted to imply an open abscess in the liver communicating with the air passages in the lungs. There was expectoration of muco-purulent, bloody matter, and, steadily sinking, the patient expired about noon of the fourteenth.

Post-mortem thirty hours after death. The anatomical examination disclosed much congestion and traces of extensive inflammation in the right side of the abdomen. The omentum adhered to the walls of the abdomen and colon, requiring considerable force to detach it. The colon was highly congested, and more or less firmly adherent to the adjacent parietes throughout the ascending portion. An abscess was found immediately beneath the cæcum, walled in by adhesions between the intestine and surrounding parts, and within this was found a hardened lump of what appeared to be a scyballous concretion, three-fourths of an inch in length and half an inch in its transverse diameter, composed of scales, granules, and fibres of insoluble food, all forming an oval-shaped mass of the dimensions above described. This was found outside and beneath the cæcum, and there was not the least trace of appendix vermiformis to be found, nor opening in the intestine through which this substance could have forced its way. We supposed that at one time it had been lodged in the appendix, and by an inflammatory action had become encysted, the opening through which it passed being closed, probably for an indefinite period previous to the last fatal sickness; that acute inflammation coming up had resulted in the extensive suppuration found, and complete destruction of the appendix. The pus from this abscess had made its way between the meso-colon and parietes the entire extent of the ascending colon to the liver; extensive adhesions had formed between the right lobe of the liver and proximal

viscera, and also with the walls of the abdomen and diaphragm. Beneath and posterior to these adhesions the pus had dissected its way to the right of the spinal column. It had perforated the diaphragm by an opening through which the index finger could be readily passed into the base of the right lung above, which was firmly adherent as well to the diaphragm as latterly to the ribs throughout the most of its costal surface. The lower lobe of the lung was perfectly hepatized, but no abscess had been formed in either the lung or liver. When cut into, a mixture of pus and blood could be pressed out of the bronchial tubes. The lower surface of the diaphragm, latterally and external to the perforation spoken of, was extensively ulcerated over a surface as large as the palm of the hand, forming shallow depressions or foramina, which did not pass through, giving it a cribriform appearance. The right lobe of the liver was somewhat engorged, but the substance not disorganized nor materially changed. The gall-bladder appeared healthy. From the lower part of the cavity in the iliac fossa to the lower border of the liver, the passage formed by the pus was filled with thick laudable pus, while that in relation to the liver and lungs contained a thin, broken-down mixture of blood and pus very offensive—such as was expectorated up to his death. The cellular meshes in the adhesions between the omentum and walls of the abdomen near the ilium contained numerous little collections of pus. The bones of the pelvis and spine had nowhere been affected by the disease. The pus had not insinuated itself into the cavity of the peritoneum or fasciæ of either the psoas or iliac muscles. There never was complaint of pain in the chest, and when I examined him by auscultation, on account of slight cough, which was twice or more, there were no pleuritic sounds observed. The adhesions were extensive, firm, and of long standing, and yet his parents affirm he had never had either pleurisy or pneumonia at any period of his life prior to this attack. Some sixteen months ago he had an attack of sickness, during the last and fatal illness of his brother Willie, above reported, in which the family say he was very feeble, and the trouble was denominated “prostration” by the attending physician. There was but little if any pain complained of during

this attack. There was more or less congestion of the vessels of the peritoneum generally, but the evidences of inflammation were those presented by the extensive adhesions and the presence of pus already named. Moreover, in the large cavity in which the greater part of the right lobe of the liver was enclosed by these adventitious adhesions, there was floating in the bloody fluid above mentioned some large flakes of semi-organized lymph, which at some time had been deposited in the part. Whether these were the result of fluid lymph poured out in the cavity, with whatever other fluids it may have mingled, or was a separation of the fibrin of blood extravasated, or whether at one time it was a deposit upon the walls of the abscess, which in the progress of the disease had been separated from the surface it may have lined, I am unable to answer, but am inclined to the last theory. A matter worthy of note is that the free cavity of the abdomen was not invaded, but the route chosen from the right iliac fossa into the lung was entirely within the line of adhesion and mesocolon, seemingly pursuing the most difficult one that could be selected. Until the pain was relieved no attempt was made to evacuate the bowels, and then they were maintained in a soluble condition. The fever abated early, and never afterward became excessive. At no time was there any appreciable nervous disturbance, chilliness, shivering, or any other well-known symptoms of extensive suppuration, but the great relief of suffering and general improvement of symptoms, early attained and easily and steadily maintained to within twenty-four hours of the fatal termination, gave rational hope of an ultimate recovery.

A CASE OF
ANENCEPHALIA.

B. J. HON, M. D., ORLEANS.

Mrs. M. F., *æt.* eighteen years, American born, married thirteen months to her third cousin, sanguino-bilious temperament, well-developed, being one of a family of four—one brother and two sisters—all of good constitution and good embonpoint; in the enjoyment of good health before and during her gestation, except during the last three months, during which she complained of pains in her bowels, which she supposed to be of a neuralgic character; menstruated last July, 1876; was called to see her March 23, 1877. On entering the room I thought my patient in second stage of labor. The nurses informed me that the “waters had broke,” and about three gallons of liquor amnii discharged. At once hastened to make an examination, but before I had time so to do the fœtus was expelled. The heart beat for a number of pulsations after birth, but no attempt at respiration was observed. The placenta was easily detached.

Sometime during the first month of her gestation, while standing in the door, she saw two men fighting, one striking the other on the back of the head, causing considerable blood to issue from the place where he was struck; also, from his nose. In this condition he passed the door where she was standing,

and she was suddenly taken sick and went to bed ; was sick for several hours, but without any hemorrhage.

The following is a description of the fœtus :

The head, which is immediately attached to the trunk, presents an appearance as suggestive of that of the frog, the eyeballs protruding forward and very prominent, due to the non-development of the ridges of the frontal bone ; the bony structures, except those portions which are near the base of the cranium, and the soft parts of the cranium, are absent, but in their stead there is an area of about three inches in diameter, and presented on first appearance as that of a vascular tumor, a representative of the pia mater, and the smooth surface, which is the equivalent of the arachnoid. The mass resembled, to some extent, at first, that of the placenta. The face turns upward ; the ears are pendulous, and nearly resting on the shoulders ; the body and extremities are well developed.

CANCER.

S. C. WEDDINGTON, M. D., JONESBORO.

Cancer is an abnormal growth within the human tissues, which has a tendency to indefinite, and sometimes rapid increase; and a tendency, at the same time, to ulceration, dissolution and disintegration. Presenting what Virchow has named *necrobiosis*—growing and dying at the same time; also, an inherent tendency to return after removal; with no auto-limitation as to time, position or extension. Abnormal growths are divided by writers into three classes—benignant, malignant and demi-malignant; or those which have a tendency to abnormal increase, but not to decay; those which have a tendency to increase and decay at the same time; and those which, generally seeming benign, sometimes have, or assume a malignant character. The term cancer is applied to those which are malignant, either at the beginning or subsequent thereto. Authors divide cancer into three classes: encephaloid, so called from its resemblance to brain substance; scirrhus, so called on account of its firmness; and colloid, so called on account of its jelly-like consistence. These classes are also divided into a large number of varieties and sub-varieties, which need not now be enumerated. Some consider melanosis, so called from its blackness, a distinct class; others consider it a variety of encephaloid. Osteo-sarcoma is a variety of encephaloid, and fungus hematodes (blood mushroom) is one stage of

encephaloid. Epithelial cancer is also considered, by some, a distinct variety. These different classes and varieties, from their general characteristics, their occasional co-existence, and from occasional change from one variety into another, are considered to be essentially the same disease. Of these classes, encephaloid is most malignant; scirrhus is next in malignity; and colloid is least so. Cancer may occur at any age, but is more frequent after than before the middle period of life; cases occurring in infancy and childhood being generally encephaloid, and those occurring in old age being generally scirrhus or colloid. Investigators have differed in opinion as to whether cancer is hereditary or not. Facts seem to warrant the conclusion that it is sometimes hereditary, but not generally so, though there seems to be in some families a predisposition to cancerous disease; and this and the predisposition to tubercular disease seem often to exist in the same families. It is also an unsettled question whether cancer is a constitutional or a local disease. I think that the prevailing opinion is, that it is generally local in its origin, but becomes constitutional in its progress. Many different opinions have been advanced as to the cause, origin, and nature of cancer. Perhaps the most prevalent opinion has been that it is an adventitious or parasitical growth, springing from cancer germs. But whether these germs are of extraneous or of internal origin, and if internal, whether they originate in local *nidi* or in the blood, or whether they may exist in the blood from birth, having been transmitted from a parent, have ever been unsettled questions on which pathologists have differed. These theories may all be wrong.

All diseases, except those caused by mechanical violence, have their seat—their primal existence—in either the blood or the nervous system; and many of those having their seat in the blood are not properly pathæmic, but consist of morbid matter, suspended in, or mixed with the blood. A peculiar form of cell, or rather of cells, has been recognized as belonging to, and being characteristic of, cancer; but authorities tell us that these cells can not be depended on, implicitly, for diagnosis. These cells differ somewhat in different varieties of cancer; and all of

them are found unconnected with cancer, either in the mature human organization or in that of the embryo.

This fact, and the fact that the disease does not appear to be in any way contagious, and that a certain predisposition generally exists, if not always, seem to be conclusive that the germs, if germs there be, are not of extraneous origin. That they originate in the blood is not probable. If they so originate, they must have germs or other adequate cause to originate from. I believe authorities state that they have never been detected in the blood until after the local disease had reached, or nearly reached, the suppurative stage; and not until disintegration had commenced. They could not originate thus without a cause, and no known cause exists for such origin. Poisonous matter in the blood might cause decomposition, deterioration and inflammation, but could not produce, *ab origine*, living germs with intrinsic vitality and capable of growth. Cancer may be hereditary, but when it is so it exists in the system of the child at birth. I can not conceive of cancer germs existing in the blood of the child, having been received from a parent, either hidden in the infinitesimal recesses of the microscopic spermatozoa of the father, or through capillary endosmosis from the mother to the placenta of the fœtus, and circulating unchanged through all the changes—the exhaustion, removal and renewal of all the tissues—for fifty years, and then finding an accidental bruise in which to lodge, to vegetate and grow into a cancer. A predisposition may be hereditary; an actual disease is not, unless it exists at birth.

I think that there is no good reason to doubt that the cancer cells are of local origin; and I believe that is now the prevalent opinion. But the cause is not local, or at least is only partially so. But, what are the causes? and how does it originate? These are the important questions in the case. Before attempting to answer I wish to indulge in a few general remarks, spread over a wide field. Human beings have a double nervous system, while some of the lowest orders of animated nature have but a single one, which is the ganglionic, organic or sympathetic. Such animals, probably, have no sensation and no proper volition; but their nervous system presides effectually

over their vital functions. As we ascend the scale we find, first, a small brain and spinal cord added, with a small degree of sensation and volition. Then a larger and still larger brain, until we reach man at the head of the column. It is probable that in man the ganglionic system presides over and regulates the strictly organic functions as completely as in the lowest animal, aided—strengthened, it may be—by the cerebro-spinal system, but not controlled by it. It may be that we have too much neglected to keep in mind this dual character; and that when the nervous system seems to be at fault we direct our attention and our remedies too exclusively to the cerebro-spinal system. I think it most probable that faults in nutrition, assimilation and elimination are due generally to debility or derangement of the ganglionic system, and that the growth of cancerous structures is due to this cause.

This silent, hidden, unconscious influence regulating the whole phenomena of organic life-building, brain, nerve, muscle, tendon, membrane, bone and every other tissue out of the same nutritious pabulum; assigning to each structure its proper position, shape and size; and removing the atoms that have become superfluous or injurious, that no part or tissue may exceed its proper limits, is our safeguard against hypertrophy, atrophy, disease and premature decay. Mysterious to us because we do not understand it, and neglected because we do not know how to treat its failures and imperfections. From some cause the regulating influence fails in some part of the system, and we have either atrophy or hypertrophy or a benignant tumor; simply a deficiency or excess of the normal structure. Let the derangement, irritation, paralysis—whatever it may be termed—be greater, and we get, instead of the normal structure, an abnormal one. We have a heteroplastic growth, it may be, of one proper tissue of the body in place of another. Then we have a malignant growth. With greater potency of the cause we have, instead of an *error loci* of a proper tissue, an improper one—a peculiar form of cell—belonging, not to the mature body, but to the immature embryo; then we find in the structure greater malignancy, or what is equivalent, less stability. The large cells of encephaloid are found in the

embryo. In that they progress, under the control of organic laws, to a higher and more perfect development; but in the encephaloid they are arrested at the immature stage and soon lapse into decay and death. We find throughout nature that the most imperfect and fragile organic structures are most rapidly produced. The mushroom may grow and mature in a night and die and decay next day, while the oak germs slowly, solid and strong, and withstands the wars of the elements for ages. So the most solid tissues of the body form slowly, change slowly, and decay slowly; while the cancer germs rapidly and decays rapidly; and the more malignant the variety the more rapidly it germs, and the sooner it loses its vitality and runs into dissolution. Less malignant varieties form more slowly and decompose or ulcerate more slowly. Now, it seems to me, that the facts fully warrant the conclusion, although I am not aware that it has been expressed by any one, that by the process of dissolution and decomposition taking place in cancerous growths a poison is formed which contaminates the blood and produces the cancerous cachexy, with all the constitutional symptoms belonging thereto. Then, cancer is a constitutional disease, and not till then. The feebleness, faultiness, lack of power or of tone—whatever it may be—of the organic nervous system, may be hereditary; for a weakness or imperfection—*adynamia*—of any organ or tissue may be transmitted from the parent to the child. Or, it may result from disease, intemperance, unhealthy food and influences, or, perhaps, from accidental causes. Whatever its origin may be, it constitutes the predisposition to cancer as well as to other diseases. It is not uncommon to find the predispositions to cancer, to tuberculosis, and to scrofula, in the same family, or even in the same person.

Many other morbid conditions besides cancer depend on abnormal cell proliferation. In the swelling which follows a bruise there is an abundance of new cells formed; but as this is the result of extraneous causes, and the nervous system is normal, these cells do not decompose, but are re-absorbed without causing permanent injury. Suppuration is also a process of cell proliferation. The formation of pus and that of granu-

lations are very nearly the same process. Pus, as such, is not deleterious to the system, but having no vitality, if retained in the system, and exposed to the causes of putrefactive fermentation it soon begins to decompose, and forms a poison which produces pyæmia. It has been made to appear very probable, by the experiments of Panum and Hiller, that bacteria, which exist in many zymotic diseases, are not themselves poisonous; but by their decomposition an agent is produced that is extremely poisonous. So it is probable that cancer, in forming, is only a local disease, not more deleterious than other local diseases, until decomposition commences; then a peculiar septic material is formed which produces cancerous cachexy and destroys health and finally life. Whether secondary cancer is caused by the transportation and lodgment of cancer cells, from the primary growth, or from the influence of the poison which creates the cachexy, or from perverted nerve influence, I can not determine. But secondary cancer is most common with the most malignant, and least common with the least malignant varieties. In colloid cancer, from some unknown cause, the dissolution of the cancerous growth results in the formation of a jelly-like substance, which is not taken up by the absorbents; and which undergoes further decomposition but slowly; consequently the system is not so soon, nor so seriously, affected; and the formation of secondary cancer is rare.

Treatment—Cancer seems, in accordance with this view, to have three distinct stages, and the indications for treatment during each stage differ entirely from those for any other stage. The stages are, first, the predisposition or functional aberration of the organic nervous system; second, the abnormal proliferation, or what we might call the healthy growth of the cancerous structure; third, degeneration and disintegration of the cancerous structure; giving rise to suppuration, hemorrhage, decomposition of products and contamination of the system.

The treatment appropriate during the first stage, besides proper hygienic measures and general tonic treatment, would be such medicines, if such there be, as have a special tonic or vitalizing effect on the organic nervous system. Unfortunately our knowledge of such remedies seems to be limited. I believe

the homœopaths use arsenicum for this purpose; and, it may have such effect. Iodine, aconite, digitalis, ergot, strychnia and, probably, propylamine, seem to act upon the organic system. Our list of medicines for this purpose is not large; and their action on this class of nerves is not well understood. There is, I think, a great need for some scientific empiricism in this connection.

For the second stage complete extirpation of the cancerous growth is, when practicable, the remedy. When this is not practicable soothing, sedative and anodyne treatment is probably the best that can be used. Avoidance of rough handling, bruising, irritating applications and all causes of excitement, general and local, is important; for stimulation and irritation will but hasten the growth, and cauterization, unless it amounts to complete extirpation, will hasten decomposition and systemic poisoning.

For the third stage there are plenty of remedies, and ample room for the display of science and ingenuity, and, I am sorry to have to say, ample room for failure to do any good beyond slight palliation. The whole list of antiseptic medicines, or any of them, may be used both locally and constitutionally. Chlorine, iodine, mercury, phenol, chloral, salicin, quinia, permanganates, camphor, sulphur, turpentine and essential oils, in all their forms and combinations, with many other articles, may be used probably to advantage. Possibly some of them might cure. If we knew just what to use and how to use it we might at least be more successful than we are. There is probably an antidote to the poison of cancer, and he who discovers it will be a great benefactor of his race. General tonic treatment, with nutritious food and proper hygienic measures, are very necessary to support the strength and counteract, as far as possible, the cancerous cachexy.

A CASE OF
INGUINAL HERNIA.

E. K. FRIERWOOD, M. D., NORTH GROVE.

Peter Richer, *æt.* about sixty-three, nativity German, has had an oblique inguinal hernia for twenty-two years. Frequently came down, but reduced it himself until last spring. May, 1875, it suddenly came down while his truss was off. Was called to see him, and reduced it by getting him on his elbows and knees, and gently performing taxis. Heard nothing more of the case till January 15th, 1876. Was called very suddenly, and found my patient suffering excruciating pain, of a colicky nature. On examination found a protrusion the size of a goose egg, and very firm on pressure; manipulated some while in the dorsal position, with legs flexed and head elevated, but the tumor would not recede. After an unsuccessful effort of two hours duration, I dispatched a messenger for chloroform, but during the absence of the messenger I placed him in the warm bath for a half hour, and made another effort at reduction, but all to no purpose. On the arrival of the chloroform I put him under its influence for one hour profoundly. Being satisfied that nothing short of an operation would relieve the man, I placed him under the influence of anodynes and sent a messenger to Xenia for Doctors Smith and Kimball to meet me there early next morning.

January 16th, eight A. M., placed the patient on a table of convenient height, administered chloroform and proceeded to operate. Found the adipose tissue about three-fourths of an inch thick. In dissecting up the different coverings found some congestion and clots of venous blood, with some very firm old adhesions. Intestine was dark but not gangrenous. Divided the stricture and returned the protruding intestine, with a portion of omentum. Closed the wound with silk sutures and dressed with compress and bandage. Gave full doses of opium and placed him in the dorsal decubitus. A messenger called at my office six hours after the operation, stating the man was much worse, and wanted me to go and see him immediately. I found the pulse had risen from sixty to eighty-two per minute; some fever, with excessive thirst and vomiting, which was controlled by morphia and ice.

January 17th, pulse seventy-two; no thirst; says he is hungry; ordered liquid nourishment, anodynes, and to strictly maintain the dorsal decubitus. But little tenderness over abdomen.

January 18th, has some thirst; pulse eighty: no soreness of abdomen; bowels moved slightly.

January 19th, pulse seventy-two; skin moist; no thirst; passes urine freely.

January 20th, feels quite well, wound healing nicely. Has removed all dressing—will not leave any on longer than a few hours.

January 21st, is feeling very comfortable; no soreness of abdomen; walks about in the house.

January 23d, still improving. In two weeks from the time he was operated on, the old gentleman walked to town, a distance of a mile and a half. He was kept thoroughly under the influence of opium for eight days and nights. Bowels moved of their own accord one week after the operation.

HEREDITARY TRANSMISSION OF DISEASE.

J. PENNINGTON, M. D., MILTON.

I wish to call your attention, for a short time, to the consideration of a subject which has occupied my attention, at times, for years past, and that is, the probable transmission of disease from parents to their children. I say probable, because the views that I have been disposed to adopt are not sufficiently proven or established by experiment, or unquestionable authority, as to leave no doubt upon the subject-matter of this paper. Our medical literature appears meager on the subject before us, or it has been my misfortune not to have seen it. I have reference to direct transmission of formidable diseases from parent to their offspring whilst, or during the time, their fathers were afflicted with chronic ulcerating surfaces, or suppurating sores. During a long practice several instances of this character have been brought to my notice, where I could account for the fatality existing in certain families in no other way than by concluding that the germ-cell resulting from the union of the spermatozoon with the germinal vesicle (which is the primary germ-cell, according to Hoblin's definition), must have been in a deteriorated condition: or in other words, unhealthy, which would necessarily result in a feeble, or vitiated

embryo, which, when developed into an adult human being, would retain this same impure, or unhealthy condition. Now, in order to elucidate my views in what is stated above, I will try to give you a brief history of at least two families, wherein I believe the children inherited disease, transmitted in the first case from a father who was afflicted with an ulcerated and pus-discharging surface on one leg for over forty years of his life; otherwise he possessed more than ordinary good health. He was one amongst our largest farmers, and had performed a great amount of hard labor in the early settlement of eastern Indiana. He was the father of twelve children, one-half of whom, born previous to the diseased condition of his leg, are at this time enjoying a fair degree of health.

I will state in this connection that Mr. B. became so great a sufferer from the increased disease of his limb, that in the sixty-eighth year of his age he resolved to have it amputated, and died from pyemia in about three weeks after the operation.

Of the other six children born during the continuance of his diseased condition, four are dead. The youngest child, a son, died just before the twenty-first year of his age, of chronic disease of the liver. The next older, a female, died of phthisis; a second sister of same disease, and the fourth died of some chronic form of disease, the character of which I am not informed, as she had left the country, to reside somewhere in the west. Two of the latter class are yet living, both of whom are suffering invalids, laboring under scrofula, rheumatism and a variety of complaints obvious to such as are never well. They are males and men of families. The younger of the two has suffered much with his back, and at this time has curvature of several of the last dorsal vertebræ.

The head, or father, of the second family to whom I wish to call your attention, I was more intimately acquainted with, and can, therefore, speak more confidently of the causes and character of the diseases which proved fatal to them. There were nine children of this family. The oldest child was born before disease occurred in the parent, the second shortly after. The disease of this father was believed to have originated from a badly dislocated ankle joint, resulting in caries of the bones,

which continued for many years to suppurate and discharge spiculæ of bone. Seven of these children are dead; but one deceased after the father, and none since the death of the mother.

The father died, in the seventy-eighth year of his age, of dysentery, and the mother, in her eighty-eighth year, of congestion of the brain. The oldest of these children, a son, *æt.* seventy-eight, and the youngest, a daughter, *æt.* sixty-two, are yet living, enjoying a fair share of good health. The four oldest children were sons, and the last five daughters. The fourth son died in infancy, the second, sixty-four or sixty-five years of age, it is said, of cancer, having been afflicted during a great part of his life with rheumatism, spinal trouble, scrofula, etc. The last five all died under thirty-five years of age, of well-marked consumption.

Being well acquainted with the parents of both the above-named families, having been their family physician for many years, I can say unhesitatingly that they possessed excellent health, with the exception of the diseased or ulcerated leg of the first named, and what was called a white swelling, or diseased ankle joint, of the second. Both cases existed, and were open, ulcerated, and pus-discharging sores over more than half the lifetime of the subjects of them.

No hereditary trace of disease can be found to have existed in the progenitors of either of these families. The mother of the first named children died near the ninetieth year of her age. Now, in order to account satisfactorily for the great fatality in these families, it seems to me that we are compelled to arrive at the conclusion that the offspring of those diseased fathers inherited disease directly from them, and that phthisis, rachitis, scrofula, rheumatism, and a host of affections too numerous to name in this connection, are produced in the offspring of parents laboring under the above described diseased condition.

The next question before us for consultation, is how, or in what way, are these diseases transmitted? The answer must surely be, through impure, or unhealthy blood; and how does the blood become contaminated? I answer, by circulating in contact with those ill-conditioned, unhealthy and chronic sup-

purating surfaces. Prof. Gross says, in his *Pathological Anatomy*, that "the blood, considered as a mass, may be variously affected, is equally true as of its several constituents. All such changes, whatever they may be, should be carefully studied, as they correspond with so many particular morbid states of the system." He further states, in his address in surgery, delivered before the American Medical Association, at its meeting in Detroit, in 1874, that "aside from the ordinary mode, the contagion of syphilis may be communicated by kissing, or smoking; by the contact of various utensils, as spoons, knives and drinking cups, and in the child at the breast of an infected mother or nurse." He also says that during the past fifteen years numerous cases have been reported in which the infection was communicated through vaccination, etc., and that all syphilographers are now agreed respecting the infectious character of the blood of syphilitic persons. That this is so, was long ago inferred from the fact that the semen of an infected person, *a direct secretion from this fluid*, is capable of imparting this poison, not only to the *embryo*, but often also to the mother. In further illustration of this subject, Gross says that Prof. Pelizari, of Florence, has fully established the above facts by experiments that can not be controverted. Viennois and others say that the specific poison of syphilitic vaccine matter resides exclusively in the blood. And more recently Dr. M. Kassowitz, of Vienna, as reported in the *American Journal of the Medical Sciences*, October number, of 1876, speaking of inherited syphilis, says there are two methods, or modes, by which the disease may be transmitted: First, direct transmission by the sperm, or germ-cell being infected by a syphilitic father or mother. Second, infection in *utero* from a syphilitic mother.

The depth and seriousness of the affection in inherited syphilis suggest at once, that the infection is by the first method, and has involved the *creature* from its generation; and this view is supported by the author's own observations. Out of one hundred and nineteen cases he finds that the inheritance was clearly from the father in forty-three cases, the mother being healthy in that number; both parents were syphilitic in twenty-

three cases, the mother alone in ten; in the remaining forty-three cases the mode of inheritance was doubtful. These statistics indicate that the father is most frequently the source of infection, and they corroborate the view, that a healthy mother may bear a syphilitic child. He believes in fact that this is a frequent occurrence. Reasoning from analogy, can we avoid the conclusions different from those above stated; that pernicious pus circulating in combination with the blood, is sufficient cause for the development of a variety of formidable diseases in the offspring of diseased parents, especially that much to be dreaded affection, consumption, which destroys more of the human family than any other form of disease of which we have any knowledge. As a general rule it selects, or preys upon the most intellectual and refined of the race, thereby rendering the loss that much greater to the community in which they had lived. The peculiar lung structure is perhaps more predisposed to the development of disease from purulent or pernicious pus commingled with the blood, than almost any other important organic structures; hence, the greater liability to disease.

To recapitulate: First, if, as has been shown, a syphilitic father does entail disease directly on his posterity by contaminating the *embryo*, through impure or vitiated *semen* secreted directly from the blood, poisoned by the venereal virus, what reason can we give why pus secreted from chronic ichorous denuded surfaces, does not also poison the blood in the same manner, if not to the same extent? It is pretty well established that the disease termed pyemia, so fatal in its tendency, is produced or caused by pus circulating and commingling with the blood. If pus from recent wounds becomes the cause of a fatal form of disease, should we not reasonably expect that ill-conditioned chronic sores would produce a pus, equally if not more pernicious than that from the above named cause?

In conclusion, allow me to enquire, in what other way can we account for the great fatality in the above named families, if not from transmission of disease from parent to child in consequence of a vitiated or impure state of the blood? Let it be

remembered that seven of these children died of phthisis, one of a chronic affection of the liver, a second of some chronic trouble, the nature of which we are not informed. As said above, no trace of hereditary disease could be found to have existed in the progenitors of either of these families.

A CASE OF PLACENTA PRÆVIA.

S. C. WEDDINGTON, M. D., JONESBORO.

Placenta prævia must always be interesting to the practitioner, from the danger necessarily attending it to both mother and child, and for the same reason it is a case in which our teachers ought, if possible, to give us very definite as well as correct instruction. From reading a paper on the subject, and the debate thereon, published in the transactions of the State Medical Society for the year 1876, I find that the great lights, even in our own state, are not fully in accord in relation to the proper treatment. Having met with a case on the fifteenth of last April which I suppose would be classed as placenta prævia, I thought a report of it might not be uninteresting to the Society. From what I had previously learned in regard to the case, I was expecting to find placenta prævia. On being called, I arrived at ten o'clock P. M. Mrs. W. was, she supposed, within a week or two of the time for delivery. She had been having violent hemorrhage every few days for about two weeks; not persistent, but ceasing each time in a few hours, to return again in a day or two. At the time of my arrival there was not much hemorrhage. It had been violent an hour or two earlier, but had now nearly ceased. There was occasionally a slight labor pain. The os uteri was dilated enough to admit one finger easily, and was very soft and yielding. The border of the placenta

had reached to, or a little beyond, the center of the os uteri, the center being anterior and to the left, and the border at the os was detached, probably, to the width of an inch. The hemorrhage soon increased and became profuse. I then gave fluid extract of ergot freely, dilated the os with my finger until it would admit two fingers easily, and then used a tampon of soft rags, pressed firmly against the os, but not accurately filling the vagina. This arrested the hemorrhage for a time, but it again became profuse (time not noted; perhaps two hours). I had continued the use of ergot, and the labor pains were gradually increasing, but were not strong nor frequent. On removing the tampon I found the os yielding and dilated, enough, I thought, to admit my hand, the membranes being yet entire. The woman was not extremely prostrated, but her pulse was becoming rapid, and she was showing plainly the effects of the hemorrhage. By auscultation I found that the heart of the child had become very feeble. The hemorrhage was affecting the child more than it was the mother. I said to the parties interested that I thought I had better turn the child and deliver without delay; that such a course would, I thought, be safest for the woman, and the only one, probably, that could save the child. They did not seem to know what I meant, or that labor could be thus hastened, but they readily gave me permission to do what I thought best in the case. I then passed my hand through the membranes into the uterus. By this time the uterine contractions were plenty strong. Not reaching both feet easily, I brought one down, turned, and delivered, using but little time in doing so. The placenta seemed adherent, and was slow in separating entirely, and there was some post partum hemorrhage, but not excessive. The tonic contraction was ultimately good. This was the fourth or fifth child of Mrs. W., and she told me that she had been subject to post partum hemorrhage, and at one time had come near dying from this cause. The child, when delivered, was in a state of suspended animation, but by proper means—inflating the lungs, etc.—was soon resuscitated. It was a female, of medium size, apparently healthy, and well developed. The woman made as quick and good a recovery as she had ever made after a labor, and the child did well. Whether

my management of the case was scientific and judicious or not I leave to others to determine. The result certainly was good. I was five or six miles from any other physician, and the night was stormy and the roads terribly bad ; consultation, in time to be of advantage, seemed to be out of the question, so I did what I thought best. I certainly did enough, and I leave it to others to determine whether or not the result justified my hasty proceedings.

TRANSACTIONS.

TRANSACTIONS
OF THE
INDIANA STATE MEDICAL SOCIETY
AT THE
TWENTY-SEVENTH ANNUAL SESSION.

First Day.

MORNING SESSION.

The twenty-seventh annual session of the Indiana State Medical Society convened in the hall of the House of Representatives, in Indianapolis, Tuesday morning, May, 1877, and was called to order at ten o'clock, by Dr. S. S. Boyd, of Wayne county, the president of the society.

On taking the chair the president said :

Gentlemen of the Indiana State Medical Society:

The time has arrived and the hour passed at which this convention was to assemble. I return my sincere thanks to this honorable body for conferring the favor on me of presiding over your deliberations during this meeting. We are ready to proceed to the business for which we have assembled, and I am ready to receive orders from the convention.

Upon motion, the reading of the minutes of last year was dispensed with, and the roll called, which indicated the following officers and delegates present :

DR. S. S. BOYD, of Wayne county, President.
 DR. E. D. LAUGHLIN, of Orange county, Vice-President.
 DR. G. V. WOOLEN, of Marion county, Secretary.
 DR. I. C. WALKER, of Marion county, Treasurer.
 DR. J. R. FEATHERSTON, of Marion county, Librarian

ALLEN—H. P. Ayres, *J. R. Beck*,* G. T. Bruebeck, J. S. Gregg, W. P. Whery, Fort Wayne; D. G. Linville, Columbia City.
 BENTON—L. C. Page, Oxford; W. H. Whitcomb, Boswell.
 BLACKFORD—*W. H. Bennett*, *C. Q. Shull*, Montpelier; *W. C. Ranson*, Hartford City.
 BOONE—*E. L. Woody*, Thorntown; *W. H. Skultz*, *J. M. Steelsmith*, *R. A. Williamson*, *M. H. Bonnell*, Lebanon; J. A. Hamilton, New Brunswick.
 CARROLL—*C. Angel*, Pittsboro; E. W. H. Beck, J. T. Richardson, W. Smith, Delphi.
 CASS—*G. N. Fitch*, J. M. Justice, *W. H. Bell*, Logansport.
 CLARKE—*W. H. McCoy*, *L. W. Beckwith*, *R. E. Curran*, Jeffersonville.
 DAVIESS—J. L. Moore, *G. G. Barton*, *H. Gers*, Washington; *D. R. Carter*, Epsom.
 DEARBORN—J. D. Gatch, M. H. Harding, Lawrenceburg; R. C. Bond, *George Sutton*, Aurora; H. C. Vincent, Guilford; *A. J. Bowers*, Moore's Hill.
 DELAWARE—W. N. Horne, Yorktown; *G. W. H. Kemper*, *T. J. Bowles*, Muncie.
 ELKHART—*R. Q. Haggerty*, Elkhart.
 FOUNTAIN—*C. V. Jones*, C. D. Watson, Covington; *W. C. Cole*, Attica; E. M. Fine, Steam Corner.
 GIBSON—*S. E. Munford*, Princeton.
 GRANT—J. S. Shively, *William Lomax*, L. Williams, *L. P. Hess*, Marion; L. Corey, Van Buren; *S. C. Weddington* and A. J. Bates, Jonesboro; D. Pugh, Warren; *A. Henley*, Fairmount; W. B. Lyons, Huntington.
 HAMILTON—*M. Hayworth*, J. M. Gray, W. H. Pontious, Noblesville.
 HANCOCK—*C. C. Loder*, Warrington; W. E. Kearns, Clearland; *N. P. Howard*, Greenfield; *S. A. Troy*, Milliner's Corners.
 HENDRICKS—*L. H. Kennedy*, *B. Bartholomew*, Danville; A. Heavenridge, Stilesville; *F. W. Smith*, Plainfield; *J. H. Orear*, Lizton; *F. C. Ferguson*, Brownsburg.
 HENRY—*I. Mendenhall*, *S. Ferris*, John Rea, Newcastle; John Hunt, Spiceland;
 HOWARD—*J. H. Ross*, *William Scott*, *I. C. Johnson*, *W. K. Mavity*, Kokomo.
 JACKSON—T. S. Galbraith, *J. W. F. Gerrish*, *S. H. Charlton*, Seymour; G. W. May, Mooney; G. O. Barnes, Courtland.
 JEFFERSON—*W. S. T. Cornett*, Madison.
 KNOX—J. W. Pugh, W. H. Wise, Oaktown; A. Patton, S. L. Harrison, F. W. Beard, Vincennes.
 KOSCIUSKO—*C. W. Burket*, J. H. Davidson, Warsaw; W. P. Seymour, Leesburg.
 LA PORTE—G. L. Andrew, LaPorte; A. G. Standiford, Westville.
 LAWRENCE—*B. Newland*, Bedford; *J. L. W. Yost*, *G. W. Burton*, Mitchell.

*Those in italics were present.

- MADISON—*W. Cook*, Pendleton; *J. W. Perry*, Alexandria; *N. L. Wickersham*, Anderson; *W. H. Lewis*, Huntsville.
- MARION—*G. W. Mears*, *T. B. Harvey*, *T. Parvin*, *L. D. Waterman*, R. N. Todd, *J. Chambers*, *J. A. Comingor*, *R. E. Haughton*, *F. J. Van Vorhis*, *J. K. Bigelow*, *W. B. Fletcher*, *I. C. Walker*, *J. N. Bryan*, Indianapolis.
- MIAMI—*C. B. Higgins*, Peru; *S. S. Marsh*, Reserve; *J. S. Meek*, Bunker Hill.
- MONROE—*G. W. Bryan*, *J. G. McPheeters*, Bloomington; *L. F. Louder*, Harrodsburg.
- MONTGOMERY—*J. W. Donaldson*, Ladoga; *O. H. Jones*, Mace.
- MORGAN—*A. W. Reagan*, Mooresville; *C. M. Lindley*, Brooklyn; *H. C. Robinson*, Martinsville.
- ORANGE—*E. D. Laughlin*, *B. J. Hon*, Orleans.
- PARKE—*J. A. Goldsberry*, Annapolis; *A. D. Tomlinson*, *J. S. Dare*, Bloomingdale; *M. Goss*, Bellemore.
- PULASKI—*W. T. Cleland*, *W. H. Thompson*, Kewana; *Joseph Thomas*, Winamac.
- RANDOLPH—*W. G. Smith*, Winchester; *William Commons*, Union City; *L. N. Davis*, Farmland.
- RUSH—*W. A. Pugh*, *J. Moffitt*, *W. Sexton*, Rushville; *J. M. Ely*, ———.
- ST. JOSEPH—*L. Humphries*, South Bend.
- STEUBEN—*H. D. Wood*, Angola; *T. F. Wood*, Metz.
- TIPTON—*D. I. Zook*, Teetersburg; *W. M. Glass*, Shielville; *D. P. Rubush*, Normanda; *J. D. Armfield*, Elwood; *W. Austin*, Windfall.
- VIGO—*C. Gerstmyer*, *W. M. Stevenson*, *W. Q. Insley*, *W. M. Powell*, Terre Haute.
- WABASH—*T. Brady*, Lincolnville; *H. Adar*, *E. T. Donaldson*, Wabash; *B. F. Blount*, Lincolnville; *H. Winton*, N. Manchester; *R. Murphy*, Roann.
- WARREN—*C. W. Osborn*, Marshfield.
- WAYNE—*J. F. Hibberd*, *J. R. Wiest*, *Mary F. Thomas*, Richmond; *J. W. Rutledge*, Cambridge City.
- WHITE—*William Spencer*, Monticello; *J. Medares*, Brookston.

By consent, the secretary here read his report, as follows :

Your secretary respectfully reports that he has received dues from the following societies, to the amount in the aggregate of five hundred and sixty-one dollars:

Allen.....	\$19.00	Hendricks.....	\$19.00
Bartholomew.....	7.00	Henry.....	12.00
Blackford.....	11.00	Howard.....	9.00
Boone.....	19.00	Jackson.....	13.00
Carroll.....	10.00	Knox.....	16.00
Cass.....	17.00	Kosciusko.....	15.00
Daviess.....	7.00	LaPorte.....	9.00
Dearborn.....	19.00	Lawrence.....	13.00
Delaware.....	15.00	Madison.....	12.00
Dubois.....	13.00	Marion.....	52.00
Fountain.....	18.00	Miami.....	14.00
Grant.....	42.00	Monroe.....	11.00
Gibson.....	14.00	Montgomery.....	10.00
Hamilton.....	4.00	Morgan.....	10.00
Hancock.....	6.00	Orange.....	11.00

Parke.....	\$6.00	Wabash.....	\$26.00
Pulaski.....	9.00	Warren.....	7.00
Steuben.....	11.90	Wayne.....	16.00
St. Joseph.....	8.00		
Tipton.....	10.00	Total.....	\$561.00
Vigo.....	21.00		

It is with no little degree of satisfaction that I call your attention in advance of the treasurer's report, to the fact that we have accomplished the designs of the society this year on the dollar assessment, without incurring debt to the society, clearly showing in this respect the superiority of the new over the old organization. Many of you know, we have encountered some embarrassment in becoming acquainted with the new order of things, but I am sure not as much as was anticipated.

I am glad of this opportunity of recognizing the cheerful assistance rendered by the various secretaries of the county societies, and express many thanks.

But few of the societies have paid the full amount of the state assessment, and it was not thought best to urge it until the advantages were more fully appreciated. It is but justice, however, that those who enjoy all the privileges should bear a share of the burden, especially when so small.

I am not able to report the number of new organizations which will enter this year, as some will report here directly to-day.

Accompanying this report is a transcript of the proceedings of and appeal from the Blackford county society, in the expulsion of Dr. N. D. Clouser, due notice of which has been received. Also, the constitution and by-laws of an organization claiming to be the Hendricks County Medical Society, in place of the one recognized by this society last year. Also, a circular letter from the Kentucky Medical Society relative to the tariff on quinine.

G. V. WOOLEN, *Secretary*.

It was moved and seconded that the secretary read the correspondence of the Kentucky Medical Association, in regard to Quinine, which was carried. The following was then read:

TARIFF ON QUININE.—At the late meeting of the Kentucky State Medical Society, Dr. Larrabee, after a few remarks in explanation, read the following resolutions, which were adopted:

WHEREAS, It has come to our knowledge that a bill, known as the "Morrison bill," for the discontinuance of the "tariff on quinine," is at this time before the committee on ways and means in the congress of the United States;

AND WHEREAS, The welfare of a large portion of the people in the western states and territories is concerned in the issue of this bill, as well as any movement which will enable them to obtain quinine at a less cost than the enormous prices now paid by the consumer;

AND WHEREAS, The opposition to this bill set forth by the manufacturers and trade does not represent the desires of those who are engaged in the relief of suffering and want, but ignores entirely the necessities of this large population,

many of whom are engaged in cultivating the soil and opening up new resources of wealth to the government in the malarial districts;

AND WHEREAS, Principles of justice and humanity alike demand free quinine and an open market for the competition of European manufacturers;

AND WHEREAS, We, the members of the Kentucky State Medical Society, in convention, represent the sentiments of the people of this commonwealth upon this important subject; therefore, be it *Resolved*,

1. That we endorse the "Morrison bill," and further pray that your honorable body will hear our petition.

2. That a copy of these resolutions (printed) be sent to similar organizations of physicians meeting in the various states.

3. That these resolutions, with the signatures affixed, be furnished to our senators and representatives in congress of the United States at its next meeting.

(Signed,)

R. W. GAINES, M. D., *President*.

It was moved and seconded that the communication be received and referred to a committee of three, to report. The chair appointed Drs. J. F. Hibberd, J. H. Helm, and E. D. Laughlin said committee.

The report of the treasurer, read and referred to the committee on finance, is as follows :

INDIANAPOLIS, May 16th, 1877.

I. C. Walker, M. D., Treasurer,

In account with Indiana State Medical Society:

To balance due, May, 1876.....	\$64.74
Received of Secretary Woolen, dues.....	561.00

Total receipts.....	\$625.74
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By cash paid for Transactions.....	\$516.00
" " for Janitor.....	15.00
" " for Reporting.....	22.75
" " for Stationery.....	10.00
" " for Postage.....	19.33

Total expenditures.....	\$583.08
Balance due, May 16, 1877.....	\$42.66

I. C. WALKER, *Treasurer*.

The following is the report of the committee on publication :

Your Committee on Publication has the honor to report that they have published six hundred and fifty copies of the transactions at a cost of five hundred and sixteen dollars, (\$516.00) in the usual style of the last few years, and have sent one copy to each member who has paid his dues. The usual exchanges have been made, leaving fifty-five volumes on hand. The engraving of the late Dr. Kersey was kindly furnished by the physicians of Richmond, Ind.

G. V. WOOLEN, *Chairman*.

The question was raised, and the chair called on to decide whether a person not a delegate could be appointed on a committee. He decided it in the negative, and on an appeal to the house, the decision was sustained.

By the Chair: It will now be in order to proceed to the appointing of a nominating committee for the purpose of reporting the officers of this convention.

It was moved and seconded that the same operation of last year be repeated, and that the delegates from each county society select one from their number for the purpose of acting on a committee to select officers for the ensuing year. Carried.

It was moved and seconded that the report of the committee on nominations be made the special order for to-morrow afternoon at two o'clock. Carried.

A call for written communications was then made, and the following papers were reported:

DR. W. HOBBS, of Knightstown—"The Medical Witness."

DR. R. E. HAUGHTON, of Indianapolis—"Dilatation and Contraction of Blood-Vessels."

DR. JNO. CHAMBERS, of Indianapolis—"Colles' Fracture."

DR. B. J. HON, of Orleans—"Anencephalous Fœtus."

DR. J. A. COMINGOR, of Indianapolis—"Plaster Paris Jacket."

DR. J. W. HERVEY, of Indianapolis—"What shall be our Future Plans for Legislation?"

DR. S. C. WEDDINGTON, of Jonesboro—"Cancer," and one "Placenta Prævia."

DR. L. L. TODD, of Indianapolis—"Therapeutic Effects of Opium"

DR. J. PENNINGTON, of Milton—"Hereditary Transmission of Disease."

DR. J. I. ROOKER, of Noblesville—"Indiscriminate Use of Hypodermic Injections."

DR. WILLIAM LOMAX, of Marion—"Two Cases Perityphlitis."

DR. E. T. FRIERWOOD, of North Grove—"Strangulated Hernia."

DR. H. V. PASSAGE, of Peru—"The Actual Cautery as a Hæmostatic."

It was moved by Dr Newland, and seconded, that the hour of half past nine o'clock to-morrow morning be set apart for the purpose of seeing the application of the plaster paris jacket in cases of spinal curvature, Dr. D. W. Yandell, of Louisville, Kentucky, being expected also at that hour, with his apparatus. This was taken by consent.

On motion of Dr. Newland, the paper of Dr. W. Hobbs, of Wayne county, on "The Medical Witness," was read. It was

discussed by Drs. Fletcher, Newland, Beck, Laughlin, Cornett, Stevens, Haughton, Harvey, Van Vorhis, and others. Referred to publication committee.

Adjourned till two o'clock P. M.

First Day.

AFTERNOON SESSION.

The society met at two o'clock. President Boyd in the chair.

Dr. J. H. Helm moved that the following resolution, passed last year, be rescinded :

"That no paper which is presented to this society and referred to the committee on publication shall be allowed to appear in print, without the consent of the committee on publication, before its publication in the transactions."

After free discussion, the motion was lost.

Dr. Haughton then read a paper on "Dilatation and Contraction of Blood-Vessels, and other Tubular Structures," which was freely discussed by Drs. Waterman, Walker, Newland and others.

It was moved and seconded that the president's paper be made the special order for to-morrow at half-past ten o'clock. Carried.

On motion, the convention adjourned until evening at half-past seven o'clock. Carried.

First Day.

EVENING SESSION.

President Boyd called the society to order at eight o'clock P. M.

Dr. Jno. Chambers, of Indianapolis, read his paper on "Colles' Fracture," which was freely discussed by Drs. Bigelow,

Comingor, Lomax, Hobbs and Robinson, and then referred to publication committee.

The following gentlemen were appointed as a committee on finance: J. H. Hibberd, T. B. Harvey, and W. A. Pugh.

Dr. W. Austin offered the following:

Resolved, That the Indiana State Medical Society hereby tenders its thanks to Governor Hendricks for being the first governor of the state of Indiana that has ever recommended to the state legislature the necessity of a state board of health.

Carried.

A motion was then made to adjourn until to-morrow morning at ten o'clock. Carried.

Second Day.

MORNING SESSION.

WEDNESDAY, May 16, 1877.

Convention met, pursuant to adjournment, at 8:30 o'clock, A. M., the President in the chair.

A paper was read entitled "Anencephalous Fœtus," by Dr. B. J. Hon, of Orleans, with specimen. Discussion by Drs. Thomas, Van Vorhis, Lomax, Hobbs, Boyd, Troy, Sutton, Laughlin, Hadley, Woolen and Pugh. On motion of Dr. Laughlin, the paper was referred to committee on publication.

Dr. D. J. Zook offered the following:

Resolved, That we, the members of the State Medical Society will discourage, both by precept or example, the bidding on or contracting for the pauper practice among the members of our profession.

On motion, the resolution was laid on the table.

Dr. D. C. Rubush offered the following:

Resolved, That there be a standing committee of one from each county to draft resolutions for the consideration of our next annual meeting, and memorialize the legislature on the subject of state medicine and a state board of health; also, to publish in each of the county papers a plausible reason for the above resolution.

By the chair: By whom shall that committee be appointed?

Dr. Hibbard: By the chair.

The President subsequently failed to appoint; so the matter remains in the hands of the old committee, Dr. T. M. Stevens, G. W. Burton, W. Hobbs and J. W. Hervey.

Dr. T. Parvin presented the following:

Notice is hereby given that at the next meeting of the society an amendment to the constitution will be introduced as follows: Amend section two, article five, so as to read: Each officer shall be elected by a vote of a majority of all the delegates present; the nomination being made by the general meeting of the society and not by a nominating committee, and shall serve one year or until another is elected to succeed him; also, no paper shall be read in full before the society which exceeds twenty-five minutes in length, and in the discussion of papers, the speaker shall be limited to ten minutes.

Dr. T. M. Stevens offered the following amendment to section four, article eight, to read as follows:

The committee on ethics shall examine and report to the society all cases of appeal from county societies, and shall examine all complaints against members for non-professional conduct, and in all cases the decision of the committee shall be final, subject only to the appeal to the American Medical Association.

Dr. G. Sutton moved that the committee on publication be, and is hereby authorized to employ during the publication of the transactions of the society, a person of practical experience in proof reading to aid in correcting the proof sheets.

After a word of explanation by the secretary, it was adopted.

The hour having arrived that was set apart by the society for Dr. Comingor to make an exhibition of the application of the plaster jacket, the exhibition was made.

Dr. Curran: I move that thanks of the society be tendered to Dr. Comingor for his exhibition of the plaster jacket. Carried.

The hour especially designated for that purpose having arrived, the vice-president, Dr. E. D. Laughlin, took the chair, and the president, Dr. S. S. Boyd, read the annual address, the subject being Empyricism. Commendatory remarks on same were made by Drs. Hibberd, Beck and Wiest.

On motion, it was referred to committee on publication.

Dr. J. F. Hibberd, chairman of the select committee on quinine, made the following report which, on motion, was adopted as a whole :

The select committee to whom was referred a preamble and resolution of the State Medical Society of Kentucky, concerning the abolition of the duty on quinine by the general government, find on examination that the literal declaration of the Kentucky society is an indorsement of a certain bill known as the "Morrison Bill" pending before the late session of the United States Congress.

Your committee have no means at this moment of ascertaining the exact provisions of the Morrison Bill, and can not therefore consistently recommend this society to follow suit on the lead of our brethren of Kentucky, but with a full conviction that quinine ought to be made as cheap as possible to its consumers, because it is one of the necessities for all classes of people, we recommend that this society pass the resolutions hereto attached as the best means of making its desire for free quinine of practical importance.

The duty on quinine is twenty per cent. *ad valorem*, and assuming the present retail price to be six dollars an ounce, the abolition of the duty would reduce the price to four dollars and eighty cents, a difference of magnitude to many of the vast hosts of the victims of malarial disease in the United States.

Respectfully submitted,

J. F. HIBBERD.

J. H. HELM,

E. D. LAUGHLIN.

The following resolutions were then presented :

Resolved, By the Indiana State Medical Society, that it is the sense of this society, in view of the multitude of people in the United States who are annually victims of malarial disease, many of them the pioneers in our newly extended borders, and who deem the use of quinine essential to their health, if not to their existence, that quinine ought to be placed within their reach at the least possible cost, and that, therefore, the Congress of the United States, as an act of common humanity, ought to so amend the tariff law as to admit the importation of quinine free of duty.

Resolved, That a copy of the foregoing resolution be officially forwarded to the Speaker of the House of Representatives and the President of the Senate of the Congress of the United States at its next session.

Resolved, That a copy of these resolutions be presented to the ensuing meeting of the American Medical Association, and the representatives of this society in that association are hereby requested to use their influence to have the matter considered and acted on by that association.

Resolved, That the secretary is hereby instructed to advise the State Medical Society of Kentucky of the action of this society in this behalf.

The resolutions, as read, were adopted.

The committee on ethics made the following report :

In the appeal of Dr. Clouser from the action of Blackford County Medical Society, at a called meeting held on the twenty-ninth day of June, 1876, at which charges were preferred against N. D. Clouser with specification; after a careful examination of all the evidence in writing submitted to us, we are of opinion that the plaintiff in this case failed to sustain the charges and though the proceedings on the part of the society in its original action for the expulsion of said Clouser were informal, and therefore void, and that on the part of said Clouser, he failed to proceed in accordance with the appropriate usages of voluntary associations to secure his withdrawal from said society and is therefore a member, and commendable to its action, but can only secure his withdrawal from the society by paying all dues legally assessed against him and receiving a certificate to that effect from the secretary.

B. NEWLAND.

J. MOFFITT.

W. C. COLE.

L. HUMPHRIES.

The report of the committee was adopted by the convention.

Dr. Weddington read a paper on Cancer, which was referred to committee on publication.

Adjourned till two o'clock P. M.

Second Day.

AFTERNOON SESSION.

The society met at two o'clock, and was called to order by the President, Dr. Boyd.

Dr. J. R. Beck, secretary of the committee on nominations, made the following report, which was adopted by the convention :

For President—DR. L. D. WATERMAN, Marion county.

For Vice-President—DR. N. P. HOWARD, Hancock county.

For Secretary—DR. G. V. WOOLEN, Marion county.

For Assistant Secretary—DR. G. W. BURTON, Lawrence county.

For Treasurer—DR. I. C. WALKER, Marion county.

For Librarian—DR. J. R. FEATHERSTON, Marion county.

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

DR. JOHN MOFFITT, Rush county.	DR. G. W. BURTON, Lawrence county.
DR. GEORGE SUTTON, Dearborn county.	DR. J. L. W. YOST, Lawrence county.
DR. A. J. AXTELL, Monroe county.	DR. T. J. DRYDEN, Hendricks county.
DR. WILLIAM SCOTT, Howard county.	DR. L. HUMPHREYS, St. Joseph county.
DR. J. BARKER, Hendricks county.	DR. A. M. VICKERY, Tipton county.
DR. D. J. CUMMINGS, Jackson county.	DR. C. M. LINDLEY, Morgan county.
DR. J. H. HELM, Miami county.	DR. W. C. RANSOM, Blackford county.
DR. E. D. LAUGHLIN, Orange county.	DR. A. G. PORTER, Boone county.
DR. F. J. VAN VORHIS, Marion county.	DR. I. C. JOHNSON, Howard county.
DR. B. NEWLAND, Lawrence county.	DR. J. R. WIEST, Wayne county.
DR. W. H. BELL, Cass county.	DR. D. H. OLIVER, Marion county.
DR. T. F. WOOD, Steuben county.	DR. I. C. WALKER, Marion county.
DR. T. B. HARVEY, Marion county.	DR. C. W. BURKET, Kosciusko county.
DR. JOSEPH R. BECK, Allen county.	DR. JOHN H. DAVISSON, Kosciusko county.
DR. HUGH D. WOOD, Steuben county.	DR. J. A. COMINGOR, Marion county.
DR. WILLIAM LOMAX, Grant county.	DR. I. W. DONALDSON, Montgomery county.
DR. G. N. FITCH, Cass county.	DR. J. D. WEBBER, Kosciusko county.
DR. THOMAS J. DILLS, Allen county.	DR. T. M. STEVENS, Marion county.
DR. S. S. BOYD, Wayne county.	DR. W. N. MCCOY, Clarke county.
DR. J. I. ROOKER, Marion county.	DR. L. D. WATERMAN, Marion county.
DR. HENRY P. AYRES, Allen county.	DR. W. H. LEWIS, Madison county.
DR. M. H. BONNELL, Boone county.	DR. E. I. JUDKINS, Hancock county.
DR. H. W. CLARK, Hamilton county.	DR. J. W. F. GERRISH, Jackson county.
DR. M. F. CRAIN, Steuben county.	DR. S. H. CHARLTON, Jackson county.
DR. G. W. H. KEMPER, Delaware county.	DR. J. PENNINGTON, Rush county.
DR. J. MEDARIS, White county.	DR. C. T. PECK, Kosciusko county.
DR. W. SPENCER, White county.	DR. T. A. GRAHAM, Floyd county.

The committee also recommended that the secretary be allowed a salary.

The secretary, Dr. Woolen, stated he would accept no salary that was not obtained on a one dollar assessment, and wanted it distinctly understood that he wanted no salary.

Dr. Helm, of Peru, moved that the compensation of the secretary be made one hundred dollars *per annum*.

Which was carried.

Dr. J. I. Rooker, of Noblesville, read his paper on The Indiscriminate Use of Hypodermics.

Which, upon motion, was referred to committee on publication, after remarks by Dr. T. B. Harvey.

Dr. D. W. Yandell, of Kentucky, was then introduced and by special request, exhibited his application of the plaster jacket for curvature of the spine.

Upon motion, the thanks of the society were tendered the doctor.

Dr. J. T. Hibberd, chairman of the committee on finance, made the following report, which was adopted, together with the resolution connected therewith :

Your committee on finance have examined the treasurer's and secretary's reports and find them correct.

The five hundred and sixty-one dollars paid by the county societies to the state society is not all that should have been paid. The assessment last year was one dollar on each member of the society, and whole number of members as will be seen by the accompanying table, is seven hundred and forty-two.

COUNTY SOCIETIES.	No. of Members and Amount Assessed.	Amount Paid.	Amount Under- paid.
Allen	27	\$19.00	\$ 8.00
Bartholomew	7	7.00	...
Benton	13	...	13.00
Blackford	14	11.00	3.00
Boone	21	19.00	2.00
Cass	18	17.00	1.00
Carroll	13	10.00	3.00
Dearborn	20	19.00	7.00
Daviess	14	7.00	7.00
Delaware	15	15.00	...
Dubois	17	13.00	4.00
Fountain	10	18.00	1.00
Gibson	14	14.00	...
Grant	42	42.00	...
Hamilton	22	4.00	18.00
Hancock	22	0.00	16.00
Hendricks	20	19.00	1.00
Henry	15	12.00	3.00
Howard	33	9.00	24.00
Jackson	13	13.00	...
Jefferson	17	...	17.00
Knox	10	16.00	3.00
Kosciusko	15	15.00	...
LaPorte	10	9.00	1.00
Lawrence	13	13.00	...
Madison	21	12.00	9.00
Marion	52	52.00	...
Miami	14	14.00	...
Monroe	14	11.00	3.00
Montgomery	13	10.00	3.00
Morgan	10	10.00	...
Orange	11	11.00	...
Parke	18	6.00	12.00
Pulaski	9	8.00	...
St. Joseph	9	9.00	1.00
Steuben	10	11.00	8.00
Tipton	20	10.00	10.00
Vigo	24	21.00	3.00
Wabash	26	26.00	...
Warren	7	7.00	...
Wayne	16	16.00	...
White	5	...	5.00
Total	742	\$561.00	\$181.00

There should, therefore, have been seven hundred and forty-two dollars paid in, and it was the reasonable duty of each county society to have sent to the

secretary of the state society as many dollars as it reported to have members of such county society, but the money falls short of this, as will be seen by the table, one hundred and eighty-one dollars. And it will be further shown by the table that of ninety-two counties in the state only forty-two have reported incorporated auxiliary medical societies; of these, fifteen have paid the proper amount; twenty-seven have fallen short in the aggregate, one hundred and eighty-six dollars; three have paid nothing.

Some measures should be adopted to compel the county societies to pay the assessment that the state society may make upon them, and to your committee it appears sufficient for this society to adopt an order that when an assessment is made by the state society and any county society fails to pay its proper proportion according to the number of the members it reports, such society shall be held not to be in good standing, nor shall its members be allowed to participate in any of the proceedings of the state society until it makes its accounts good. To this end your committee report an accompanying resolution and recommend its passage.

Resolved by the Indiana State Medical Society, that when an assessment of money is made by this society on its members *per capita*, such assessment is to be collected by the several auxiliary county societies, of its own members, and forward the same to the secretary within the time stated. And any county society that fails to forward the proper amount within the proper time, according to its own official report of membership, shall be held to be in contempt, and none of its members shall be allowed to participate in the business of the state society, until such county society shall purge itself of the contempt, by paying up its dues in full.

An assessment of one dollar on each member is recommended to meet the expenses of the current year, believing that if the rule recommended in the resolution should prove effective there will be money sufficient and to spare for all our just expenses. The membership of this society must now reach at least about eight hundred, and we think it not an unreasonable anticipation to hope for not less than seven hundred dollars under an assessment of one dollar *per capita*.

Respectfully submitted:

J. F. HIBBERD,
T. B. HARVEY,
W. A. PUGH.

The president announced the following :

Committee on arrangements—Drs. F. J. Van Vorhis, John Chambers, J. A. Conning, W. B. Fletcher, J. W. Bryan, of Indianapolis.

Also the following :

Committee on publication—G. V. Woolen, L. C. Walker, R. E. Houghton, J. Eastman, A. Maxwell, of Indianapolis.

The committee on credentials made the following report, which was accepted by the society :

Your committee, to whom was referred the claims of the rival delegations from Hendricks county, submit the following report: The evidence, oral and documentary, shows that the Hendricks county medical society was organized in 1854 and has continued in existence ever since; that when the state society adopted the delegate system of representation from incorporated auxiliary county societies, the Hendricks county society changed its constitution to conform to the requirements of the state society and laws of the state providing for the formation of voluntary associations. The constitution, as changed, was left with the recorder of the county, and his certificate taken for it, which certificate was presented to the secretary of the state society, authorizing him to enter the county society on the roll of auxiliary societies, and their delegates were admitted to the state society. It has been subsequently ascertained that the constitution was not recorded, and was defective in not giving a particular description of its seal and the post-office address of its members; that these technical defects were unknown to its members, who were acting in good faith, under a conviction that all the demands of the state society and the laws of the state had been complied with; that after it was ascertained that the requirements of the law had not been fully complied with, a new society was organized, in which all the statutory requirements were observed; that the said latter society applies for admission to the state society; that such admission would require the state society to set aside its action admitting the delegates from the Hendricks county society last year, which action was taken on their presenting a certificate from the county recorder stating that the society had complied with the law. Your committee therefore recommend that the "old" Hendricks county society be permitted to correct the errors in their constitution, and that the delegates from said society be admitted to seats during the present session of the state society.

C. B. HIGGINS,
J. R. WIEST,
W. H. BELL,
WILLIAM LOMAX,
S. E. MUNFORD,
Committee.

On motion of Dr. Walker, an invitation was given Dr. McIntire, of Richmond, to exhibit a new form of vaginal speculum.

Dr. Weddington, of Jonesboro, then read a paper on Placenta Prævia, which was referred to the committee on publication. Convention adjourned.

Second Day.

EVENING SESSION

The President, Dr. Boyd, called the society to order at 8 o'clock, p. m.

On motion, Dr. L. L. Todd's paper on the Therapeutic Effects of Opium was read, and discussion delayed until the other business was transacted.

Dr. Lomax moved that the president appoint delegates to the state medical societies of the adjoining states, and that the secretary be instructed to issue certificates to any member who desires to go as delegate. Carried.

The following was offered by Dr. G. G. Barton :

Resolved, That the county societies be ordered to appoint their delegates at least six weeks prior to the annual meeting of the state society, and notify the secretary of this society of the same.

Carried.

It was moved that Dr. J. W. Hervey's paper on Medical Legislation be referred, without reading, to committee on publication. Taken by consent.

Dr. Van Vorhis offered the following :

Resolved, That subordinate societies be and are hereby required to forward the amount of their dues, with list of membership, to the secretary of this society on or before each annual meeting, and that the annual assessment for the next year shall be one dollar for each member of the subordinate societies.

The resolution was adopted.

The following was submitted by the librarian, Dr. J. R. Featherston, without action being taken by the society :

Resolved, That the librarian of this society be authorized, in conjunction with the secretary and treasurer, to expend each year, after the publication of the transactions, the balance of funds remaining unexpended, in purchasing and collecting medical books, specimens, etc., to be added to the state library, and to be known as the medical department of the state library.

The paper of Dr. L. L. Todd was then discussed by Drs. I. C. Walker, R. E. Haughton, F. J. Van Vorhis and J. R. Beck.

Dr. H. V. Passage, of Peru, read, upon his solicitation, a paper on the Actual Cautery as a Hæmostatic. Referred to committee on publication.

Dr. Van Vorhis moved,

That the thanks of this society be tendered the president and officers of the society for the faithful performance of duties.

Carried.

Moved, that the association adjourn until the third Tuesday in May, 1878. Carried.

CONSTITUTION
OF THE
INDIANA STATE MEDICAL SOCIETY.

ARTICLE I.

TITLE.

The name and title of this society shall be the Indiana State Medical Society

ARTICLE II.

OBJECT.

The object of this society shall be to provide an organization through which the regular physicians of the state may be united in one great professional fraternity, for the purpose of giving frequent and emphatic expression to the views and aims of the medical profession; to supply more efficient means than have hitherto been available for cultivating and advancing medical knowledge; for elevating the standard of medical education; for promoting the usefulness, honor and interests of the medical profession; for exciting and encouraging emulation and concert of action among its members; for facilitating and fostering friendly intercourse between those engaged in it; for enlightening and directing public opinion in regard to the duties, responsibilities and requirements of medical men; and for the promotion of all measures adapted to the relief of the suffering, and to improve the health and protect the lives of the community.

ARTICLE III.

MEMBERS.

SECTION 1. The members of this society shall consist of delegates from the various county medical societies of this state, organized in accordance with the provisions of this constitution, who shall serve one year, or until others are elected to succeed them.

Constitution.

SEC. 2. All members in good standing in the auxiliary county societies shall be members of this society in all its rights and privileges, except that none but delegate members shall transact the legislative business of the session.

ARTICLE IV.

COUNTY SOCIETIES.

SECTION 1. Any incorporated county medical society whose constitution embraces the objects of this constitution and the code of ethics of the American Medical Association shall, upon application, become auxiliary to the state society, and shall be entitled to one delegate for every five members, and one for every additional fraction of more than half this number.

SEC. 2. The names of the members of such county societies, with their postoffice addresses, shall be certified by their respective secretaries, and forwarded to the secretary of the state society, who shall enroll them in a book kept for that purpose; and each member shall be entitled to a copy of all the publications of this society upon the payment of its assessments.

ARTICLE V.

OFFICERS.

SECTION 1. The officers of this society shall be a president, vice-president, secretary, assistant secretary, treasurer and librarian.

SEC. 2. Each officer shall be elected by a vote of a majority of all the delegates present, and shall serve one year, or until another is elected to succeed him.

ARTICLE VI.

DUTIES OF OFFICERS.

SECTION 1. The president shall preside over the meetings, preserve order, call meetings when, in his judgment, the interest of the profession may require it, and perform such other duties as custom and parliamentary usage may require.

SEC. 2. The vice-president shall assist the president in the performance of his duties, and, in his absence, preside over the meetings.

SEC. 3. The secretary shall keep correct minutes of the proceedings of the society, and, when approved, fairly transcribe them in a book kept for that purpose. He shall have charge of all books and papers belonging to the society, excepting such as may properly belong to the treasurer and librarian, receive all moneys due the society, and turn them over to the treasurer, keeping an account of the same; perform all other duties which the usage of corporate or organized bodies may require, and serve as a member of the committee on publication.

SEC. 4. The assistant secretary shall assist the secretary in the performance of the duties of his office.

SEC. 5. The treasurer shall receive all moneys due the society, and pay all bills approved by the finance committee and countersigned by the president,

keeping a correct account, and making a full detailed report of the same to the annual meeting of the society, and serve as a member of the committee on publication.

SEC. 6. The librarian shall have charge of all the books, manuscripts (not specially belonging to the secretary and treasurer), instruments, specimens, preparations, and other scientific property belonging to the society, keeping a complete catalogue of the same, and report the condition of his department to the annual meetings of the society.

SEC. 7. The officers shall deliver all records, books, papers, funds, and other property belonging to their several offices, to their successors, when they shall enter upon the discharge of their respective duties.

ARTICLE VII.

STANDING COMMITTEES.

At each annual meeting the president shall appoint the following standing committees, each to consist of five members, and to serve until their successors are appointed and enter upon the discharge of their duties, viz: A committee on arrangements, a committee on credentials, a committee on finance, a committee on ethics, and a committee on publication.

ARTICLE VIII.

DUTIES OF STANDING COMMITTEES.

SECTION 1. The committee of arrangements shall, if no sufficient reason prevent, be mainly composed of members at the place where the next annual meeting is to be held, and provide suitable rooms and accommodations for the meeting, and in all matters not otherwise provided for, superintend and protect the general interest of the society.

SEC. 2. The committee on credentials shall examine and report upon the validity of the credentials of the delegates from the county societies.

SEC. 3. The committee on finance shall superintend the monetary affairs of the society, inspect and audit all bills and the accounts of the treasurer, and recommend the assessment of such *pro rata* tax upon its members, as may be required to defray the current and incidental expenses of the society.

SEC. 4. The committee on ethics shall examine and report, for the action of the society, while in attendance upon its meetings, all cases of appeals from county societies, and complaints against members for non-professional conduct.

SEC. 5. The committee on publication, of which the secretary and treasurer shall be members, shall have charge of preparing for the press, and of publishing and distributing such of the proceedings, transactions, and memoirs of the society as may be ordered for publication. It shall supervise and edit all papers presented to the society and ordered to be published, and report its doings to each annual meeting.

SEC. 6. The standing committees shall keep regular minutes of their proceedings, and furnish an authenticated copy thereof, to be deposited with the librarian.

ARTICLE IX.

VACANCIES.

All vacancies in offices, occurring in the interim of the meetings, shall be filled by appointment of the president.

ARTICLE X.

QUORUM.

SECTION 1. Two-thirds of all the delegates shall constitute a quorum competent to alter or amend the constitution.

SEC. 2. One-half of the delegates reported to the secretary at any meeting shall constitute a quorum to transact any business, except to alter or amend the constitution.

ARTICLE XI.

POWERS AND DUTIES.

SECTION 1. The society shall have full power, and it shall be a part of its duties, to adopt such measures as may be deemed most efficient for mutual improvement, and for exciting a spirit of emulation among the members of the profession; for facilitating the dissemination of useful knowledge; for promoting friendly intercourse among its members; for the advancement of medical science and for securing the objects set forth in article II, of this constitution,

SEC. 2. It shall have power to censure or expel any member convicted of violating its provisions, or who may be guilty of any act which may be considered derogatory to the honor of the medical profession; to hear and decide appeals coming from auxiliary societies, and enforce the observance of the code of ethics.

SEC. 3. It shall have power to raise money of its members, by a tax which shall not exceed three dollars, annually, upon each member.

SEC. 4. The society shall hold at least one meeting annually, and more if deemed necessary for the promotion of its interests.

SEC. 5. It shall adopt a seal as the insignia of its corporate authority.

SEC. 6. The time and place of each succeeding meeting shall be determined by a vote of the society.

ARTICLE XII.

FUNDS.

The funds of the society shall be applied exclusively to the promotion of its objects, as set forth in article II of this constitution.

ARTICLE XIII.

CODE OF ETHICS.

This society adopts, as a part of its regulations, the code of ethics of the American Medical Association.

ARTICLE XIV.

AMENDMENTS.

Every proposition for altering and amending the constitution shall be made in writing, and if such alteration or amendment receive the unanimous vote of all the delegates present, it shall be adopted; but if objection be made, it shall lay over until the next annual meeting, when, if it receive two-thirds of the quorum for amending the constitution, it shall be adopted.

ARTICLE XV.

SEAL.

The seal of the Indiana State Medical Society shall consist of a circular disc, two inches exterior diameter, with an ornamental border or margin. Within this outer margin shall be in Roman letters: "Indiana State Medical Society. Organized MDCCCXLIX." Within this, another circle, with the motto in Latin, Roman letters: "Physiologica medicina cautionis et curæ morborum vera scientia est." The center is occupied by figures of Esculapius with staff and scroll, Hygeia casting away the serpent, surrounded on base and sides by a wreath of leaves; to the rear and right of the figure of Esculapius an owl is perched.

The following is an impression of said seal:



LIST OF MEMBERS
OF THE
INDIANA STATE MEDICAL SOCIETY

ALLEN COUNTY.

Officers.

WILLIAM P. WHERY, President.
J. R. BECK, Secretary.
W. H. BROOKS, Treasurer.

Censors.

A. P. BACHMAN. G. T. BRUEBACH. JAMES S. GREGG.

Members.

AYRES, HENRY P., Fort Wayne.	METCALFE, SAMUEL C., Fort Wayne.
BECK, JOSEPH R., Fort Wayne.	MCCULLOUGH, THOMAS P., Fort Wayne.
BROOKS, WILLIAM H., Fort Wayne.	McHENRY, J. D., Maples.
BRUEBACH, GEORGE T., Fort Wayne.	MITTEN, A. P., Columbia City.
BACHMAN, A. P., Fort Wayne.	MYERS, WILLIAM H., Fort Wayne.
CHAMBERS, J. D., Fort Wayne.	OVIS, CHARLES, Fort Wayne.
DILLS, THOMAS J., Fort Wayne.	PURMAN, DARIUS M., Fort Wayne.
FERGUSON, WILLIAM T., Fort Wayne.	ROSENTHAL, ISAAC N., Fort Wayne.
GREGG, JAMES S., Fort Wayne.	SMITH, CORNELIUS S., Fort Wayne.
JOSSE, JOHN M., Fort Wayne.	WHERY, W. P., Fort Wayne.
LINVILL, D. G., Columbia City.	WOOD, HUGH D., Angola.
MAYER, CHARLES F., Fort Wayne.	

BENTON COUNTY.**Officers.**

JONATHAN KOLB, President.
 A. W. WELLS, Secretary.
 S. C. FENTON, Treasurer.

Censors.

J. K. THOMPSON.

J. M. G. BEARD.

Members.

BARNES, J. W., Oxford.	MOORE, A. V., Poolsville.
BEARD, J. M. G., Ambia.	PAGE, L. C., Oxford.
CARNAHAN, —, Fowler.	PURDY, —, Fowler.
FENTON, S. C., Pine Village.	THOMPSON, J. K., Otterbein.
GRAY, J. A., Otterbein.	WELLS, A. W., Oxford.
KILLIN, J., Montgomery.	WHITCOMB, J. H., Boswell.
KOLB, J., Oxford.	

BLACKFORD COUNTY.**Officers.**

C. R. MASON, President.
 H. C. DAVISSON, Secretary.

Censors.

W. C. RANSOM.

J. A. RANSOM.

Members.

BENNETT, H. H., Montpelier.	RANSOM, W. C., Hartford City.
DAVISSON, H. C., Priam.	RANSOM, J. A., Hartford City.
DRAYER, P., Hartford City.	SHULL, C. Q., Montpelier.
LONDON, L. C., Priam.	WILT, W. W., Montpelier.
MASON, C. R., Hartford City.	

BOONE COUNTY.**Officers.**

S. W. RODMAN, President.
 E. S. WOODY, Vice-President.
 A. G. PORTER, Secretary.
 W. H. SHULSE, Treasurer.

Members.

BENNINGTON, A. M., Lebanon.	PARKER, J., Colfax.
BOGAN, —, Kirks X Roads.	PARR, W. P., Lebanon.
BONNELL, T. H., Lebanon.	PORTER, A. G., Lebanon.
BONNELL, M. H., Lebanon.	PORTER, J. R., Lebanon.
BOYD, J. M., Thorntown.	PORTER, W. D., Lebanon.
CLAYPOOL, J. S., Colfax.	RODMAN, S. W., Zionsville.
DAVIS, D. B., Thorntown.	ROSE, M. H., Thorntown.
DUZAN, G. N., Zionsville.	SHULSE, W. H., Lebanon.
HAMILTON, J. H., New Brunswick.	SIMS, J. F., Elizaville.
HARDY, J. S., Zionsville.	SMITH, C. H., Lebanon.
HARRISON, T. H., Lebanon.	STEELSMITH, —, Elizaville.
LANE, T. H., Lebanon.	WILLIAMSON, W. A., Lebanon.
LOFTIN, J., Lebanon.	WOODY, E. S., Thorntown.
NICKREY, A., Elizaville.	

CARROLL COUNTY.

Officers.

E. W. H. BECK, President.
L. SNYDER, Vice-President.
W. F. SHARRER, Secretary.
WILLIAM SMITH, Treasurer.

Members.

ANGELL, CHARLES, Pittsburg.	RICHARDSON, J. T., Delphi.
ARMSTRONG, F. G., Camden.	SHARRER, W. F., Rockfield.
BECK, E. W. H., Delphi.	SMITH, WILLIAM, Delphi.
COCHRANE, I. N., Delphi.	SNYDER, L., Camden.
LOOP, W. M., Deer Creek.	STERRETT, J. E., Burrows.
NOLAND, S. T., Delphi.	

CASS COUNTY.

Officers.

W. H. BELL, President.
J. M. JUSTICE, Vice-President.
I. B. WASHBURN, Secretary.
R. FABER, Treasurer.

Censors.

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*Deceased.

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